User's Manual

SPH & SPH Pinch Series Bulk Blasters

⚠ WARNING

These products and equipment are not under any circumstances to be used with sand or silica products of any type and use of such materials will void any warranty. Also, as with the use of any product or equipment you must be sure to use the proper safety equipment and to properly train your employees in the use of any equipment or products. The manufacturer, wholesaler and distributor assume no responsibility arising from the failure to use proper safety equipment or the failure to properly train employees in the use of products and equipment.

⚠ WARNING

Read Manual

Failure to read, understand & follow **all** safety and operation procedures in this manual can cause serious injury or death. Manuals that are lost, incomplete, or damaged must be replaced immediately.

Manual P/N: PB-MAS002

Manual Revision: July 15

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Using This Manual

Thank you for your purchase of a Pirate Brand® SPH Series Bulk Blaster. It is important to note that all Pirate Brand® blasting equipment is designed to be safe when used properly, however, misuse of any abrasive blasting equipment is dangerous and can result in the severe injury or death of the operator and others in the vicinity of the blasting equipment. In order to protect yourself and those around you, read and follow all sections of this manual & warning labels located on the blasting equipment.

Definition Of Terms Used In This Manual

Abrasive: A granular material used for blasting the surface of an object. Also referred to as "Media."

Blow-down: The automatic or manual release of air from a pressurized vessel. Also referred to as "Depressurize."

Control Handle: A required device that allows the blaster to be remotely started and stopped.

Depressurize: The automatic or manual release of air from a pressurized vessel. Also known as "Blow-down".

Pressure Hold System: Any blasting system in which the Pressure Vessel remains pressurized when the control handle is released. Also known as a Manual Blow-down System.

Pressure Vessel: The enclosed area of the blaster in which abrasive is contained and filled with pressurized air when blasting.

Pressurize: To fill the pressure vessel with compressed air.

Properly Trained: A person who can be considered "properly trained" must have successfully completed a sandblasting training course that focuses on the safe operation of bulk abrasive blasters of the type purchased. They must also have read and understood this manual in its entirety.

Safety Valve: A 1/2" Full Port Ball Valve located on the top of the blaster used as a safety precaution to check for the presence of compressed air before opening the top closure. The operator should open this valve and listen for the sound of escaping air prior to opening the top closure. If escaping air can be heard, the top closure should not be opened.

Silica: A hazardous substance which is contained in many naturally occurring abrasives. Dust produced by blasting with abrasives containing silica can cause respiratory disease. Do not use abrasive containing silica under any circumstance, even when respiratory protective equipment is being used.

Safety Symbols

The safety symbols shown below exist for the safety and protection of the operator and those in the vicinity of the Abrasive Blaster. The descriptions below explain how they are used in relation to the blasting equipment.

WARNING: This symbol calls attention to a potentially hazardous situation that could result in serious injury or death if the instructions associated with the symbol are not followed. The warning triangle will be displayed throughout the manual to denote instructions to which special attention should be paid.

DANGER: This symbol calls attention to a potentially hazardous situation that **WILL** result in serious injury or death if the instructions associated with the symbol are not followed. The warning triangle will be displayed throughout the manual to denote instructions to which special attention should be paid.

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⚠ WARNING ⚠

• All persons who will be operating or will be in the vicinity of the Abrasive Blaster during its operation must receive proper training on how to safely operate the equipment and be informed of the potential hazards involved. In addition to proper training, all persons who will be operating or will be in the vicinity of the Abrasive Blaster during its operation must read, understand and follow all procedures described in the user's manual. For replacement manuals, please contact your distributor or visit www.pirate-brand.com.

• Respiratory protection is mandatory for all persons operating or located in the vicinity of the Abrasive Blaster. Follow all OSHA and NIOSH requirements for breathing equipment and supplied air standards.

• Pressurized Vessels contain large amounts of stored energy and can cause severe injury or death if safety procedures are not followed. **Never** perform maintenance or attempt to open a Pressure Vessel for any reason while it is Pressurized. **Always** Depressurize and properly disconnect equipment from its air source before performing any maintenance. **Do not** modify, grind or weld on the pressure vessel for any reason. Doing so will void the ASME certification. **Do not** use damaged pressure vessels.

• The use of proper remote control systems (commonly referred to as Deadman controls) are required when using abrasive blasters. **Never** operate the Abrasive Blaster without remote controls. **Never** use bleeder type control handles, such as Clemco® or A-BEC® style handles, with SPH or SPR series blasters as they can cause a hazardous situation where the blaster will not shut off when the handle is released.

• All persons who will be operating or will be in the vicinity of the Abrasive Blaster during its operation must protect themselves with the proper safety equipment and use of common sense. Safety equipment including but not limited to Hearing, Eye, Body and Lung protection are required. Abrasive blasters and the objects being blasted can be heavy and can lead to severe injury or death if they fall over. Always follow all safety requirements of OSHA and NIOSH.

• Use only Genuine Pirate Brand® replacement parts when performing maintenance on the Abrasive Blaster. **Do not** modify the equipment for any reason. Use of modified or non-Pirate Brand® parts can cause an unsafe situation and will void your warranty.

• **Never** use malfunctioning or damaged equipment. Before each use, inspect the Abrasive Blaster for proper function.

• Supply only cool, dry, compressed air that is free of debris to the Abrasive Blaster. Moisture or debris that reaches the remote control system can cause an unsafe situation. **Do not** supply compressed air to the blaster that exceeds 150 psi.

• **Do not** use abrasive blasters in areas that could be considered a hazardous location as described in the National Electric Code NFPA 70, Article 500. **Never** use the Abrasive Blaster in wet environments. **Always** connect electrically controlled abrasive blasters to a Ground Fault Circuit Interrupter (GFCI).

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Distributed By:

Contact Info:
For manual updates visit the Pirate Brand® website at:

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WARRANTY

PIRATE BRAND® ABRASIVE BLAST POT EQUIPMENT 5 YEAR / 10 YEAR LIMITED WARRANTY

5 YEAR LIMITED ABRASIVE BLAST POT WARRANTY. Manufacturer warrants the complete abrasive blast pot it manufactures to be free of defects in material and workmanship for a period of five (5) years from the date of invoice.

10 YEAR LIMITED PRESSURE VESSEL WARRANTY. Manufacturer warrants the abrasive blast pot pressure vessel it manufactures to be free of defects in material and workmanship for a period of ten (10) years from the date of invoice.

LIMITATION OF WARRANTIES AND REMEDIES. THIS WARRANTY IS EXTENDED ONLY TO THE BUYER WHO PURCHASES THE ABRASIVE BLAST POT DIRECTLY FROM THE MANUFACTURER OR ITS AUTHORIZED DISTRIBUTORS AND IS NON-TRANSFERABLE. THE PURCHASER'S EXCLUSIVE REMEDY ARISING FROM ITS PURCHASE OR USE OF THE PRODUCT SHALL BE STRICTLY LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCTS, AT THE DISCRETION OF THE MANUFACTURER, AND ALL WARRANTY CLAIMS OR REQUESTS MUST BE MADE IN WRITING TO THE MANUFACTURER WITHIN TEN (10) DAYS AFTER FAILURE OF THE PRODUCT. ALL OBLIGATIONS OR LIABILITIES OF MANUFACTURER OR SELLER FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE PRODUCT AND USE OR PERFORMANCE OF THE PRODUCTS, EXCEPT AS EXPRESSLY PROVIDED HEREIN, ARE FULLY DISCLAIMED AND EXCLUDED, AND NO SELLER OR DISTRIBUTOR HAS ANY AUTHORITY TO MAKE ANY WARRANTY OR ASSUME ANY LIABILITY ON BEHALF OF THE MANUFACTURER IN CONNECTION WITH THE SALE OF THE PRODUCT EXCEPT AS STATED HEREIN.

AS A CONDITION OF THE PURCHASE, PURCHASER AGREES THAT MANUFACTURER AND SELLER SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE FOR ANY COST OF FREIGHT, SHIPPING OR TRANSPORTATION, LABOR, SPECIAL CHARGES, NORMAL MAINTENANCE SERVICES, LOST OPERATING TIME, LOSS OF USE, LOST PROFITS, LOSS OF GOODWILL, CONSEQUENTIAL DAMAGES, PUNITIVE OR EXEMPLARY DAMAGES, OR OTHER DAMAGES OR LOSS. OTHER THAN AS DESCRIBED HEREIN, MANUFACTURER AND SELLER MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCTS, AND SPECIFICALLY DISCLAIM ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHER WARRANTY. PURCHASER ASSUMES ALL RISK AND LIABILITY RESULTING FROM THE USE OF THE PRODUCTS. PURCHASER FURTHER AGREES AS A CONDITION OF THE SALE AND THE USE OF THE PRODUCT, THAT ANY DAMAGES OR RISK OF LOSS OTHER THAN AS DESCRIBED HEREIN ABOVE, SHALL BE THE EXCLUSIVE RESPONSIBILITY OF THE PURCHASER AND NOT THE MANUFACTURER OR SELLER. MANUFACTURER AND SELLER SHALL NOT BE LIABLE FOR ANY DAMAGES INCURRED BY ANY PERSON AS A RESULT OF MISUSE, IMPROPER INSTALLATION, IMPROPER APPLICATION, IMPROPER OPERATION OF THE PRODUCTS, NORMAL WEAR AND TEAR, ALTERATIONS OR MODIFICATIONS MADE TO THE PRODUCTS, OR ACCIDENT. THE USE OF REPLACEMENT PARTS NOT PROVIDED OR AUTHORIZED BY THE MANUFACTURER VOIDS ALL WARRANTIES.

A COMPLETELY FILLED OUT WARRANTY CARD MUST BE RETURNED TO THE MANUFACTURER WITHIN THIRTY (30) DAYS OF PURCHASE OF THE PRODUCT OR ALL WARRANTIES ARE VOID. PRODUCT MUST BE MAINTAINED IN ACCORDANCE TO THE MAINTENANCE SCHEDULE PROVIDED IN THE PRODUCT MANUAL, FAILURE TO MAINTAIN THE PRODUCT IN ACCORDANCE WITH THE MAINTENANCE SCHEDULE VOIDS ALL WARRANTIES. THIS WARRANTY DOES NOT COVER FACTORY INSTALLED OR CUSTOMER INSTALLED ACCESSORIES.

WARRANTY CLAIMS. Warranty claims must be submitted to the manufacturer within ten (10) days after failure of the product. Contact information for warranty claims:

Forecast Sales, Inc.
2719 Tobey Dr.
Indianapolis, IN 46219
317-829-0147

Effective July 8, 2015

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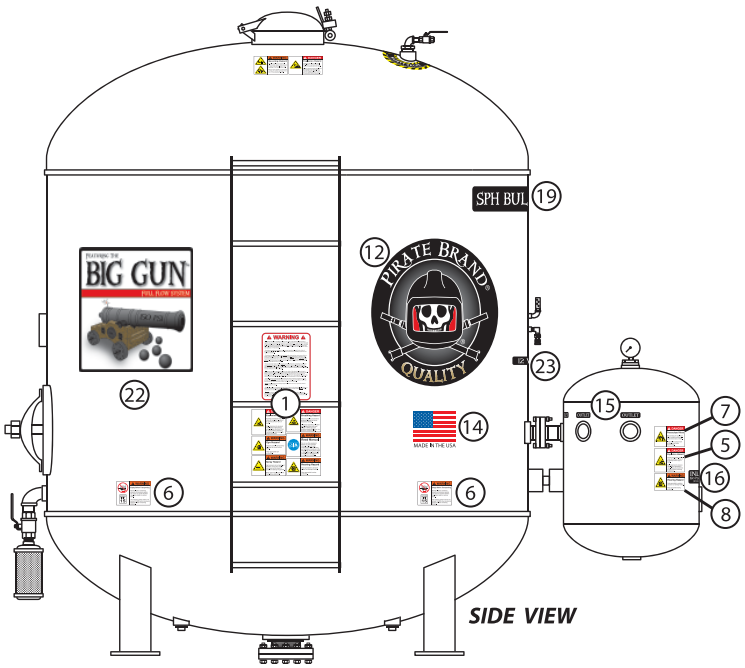
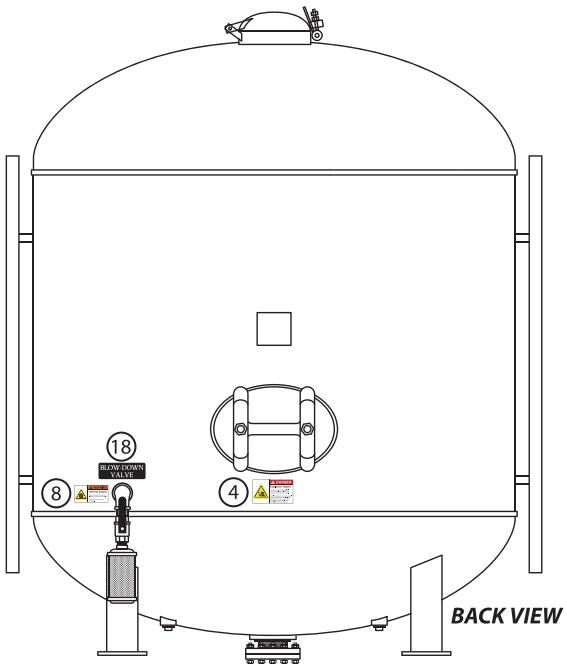
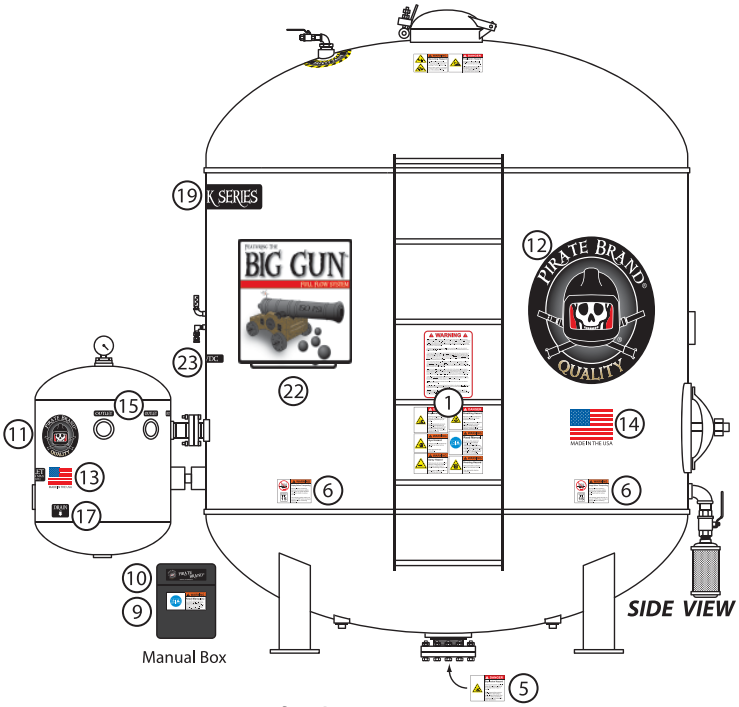
WARNING LABEL LOCATIONS



SIDE VIEW

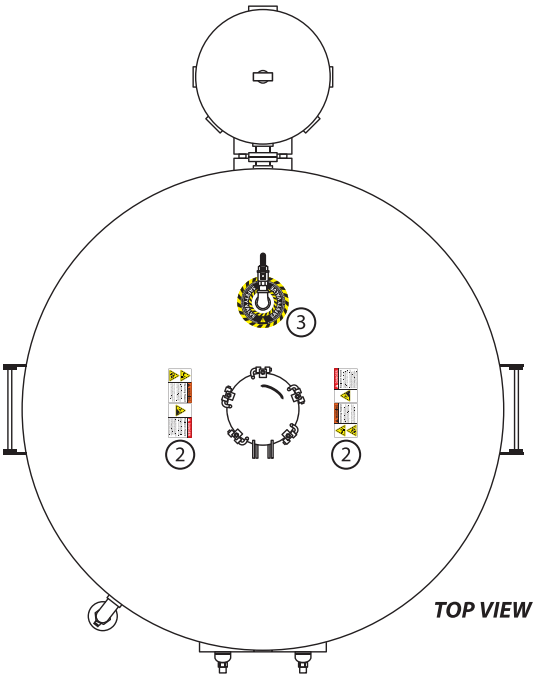


BACK VIEW



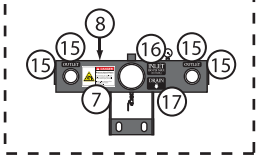
Manual Box

SIDE VIEW

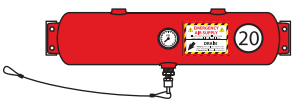


TOP VIEW

Manifold Option



Emergency Air Tank
(SPH PINCH Only)



Pinch Valve
(SPH PINCH Only)

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WARNING LABEL LOCATIONS

1 - Main Warnings (x2)
2 - Closure Warnings (x2)
3 - Safety Valve (x1)
4 - 6" Explosion Hazard (x1)
5 - 5" Explosion Hazard (x2)
6 - Transporting Warning (x4)
7 - Pressurized Hose (x1)
8 - Hearing Hazard (x2)
9 - Read Manual (x1)
10 - Manual Box Top (x1)
11 - 6" Pirate Brand (x1)
12 - 24" Pirate Brand (x2)
13 - Small USA Flag (x1)
14 - Large USA Flag (x2)
15 - Outlet (x5)
16 - Inlet (x1)
17 - Drain (x1)
18 - Blow-Down Valve (x1)
19 - SPH Bulk Series (x1)
20 - Emergency Tank (x1 SPH PINCH only)
21 - Pinch Point (x2 - x4 SPH PINCH only)
22 - 18" Big Gun (x2 BIG GUN™ Blasters only)
23 - 12VDC/24VDC (x1 for electric controls only)

Labels must be replaced when they are no longer readable!

Replacement Label Pack Part Numbers

SPH Premium and **Bare Bones**	**PB-LPS004**
SPH BIG GUN™	**PB-LPS005**
SPH PINCH Premium and Bare Bones	**PB-LPS006**
SPH PINCH BIG GUN™	**PB-LPS007**

Instructions For Installing Replacement Label Packs

1. Completely remove old label and clean area thoroughly before applying new label.

2. Apply replacement labels in locations as described above or as close as possible if area is obstructed

3. Several labels apply only to SPH PINCH Blasters. **DO NOT** apply these labels to non SPH PINCH Blasters.

4. 12 VDC and 24 VDC Label (#24) is only to be used on electric remote controlled systems. **DO NOT** apply label to systems with pneumatic remote controls.

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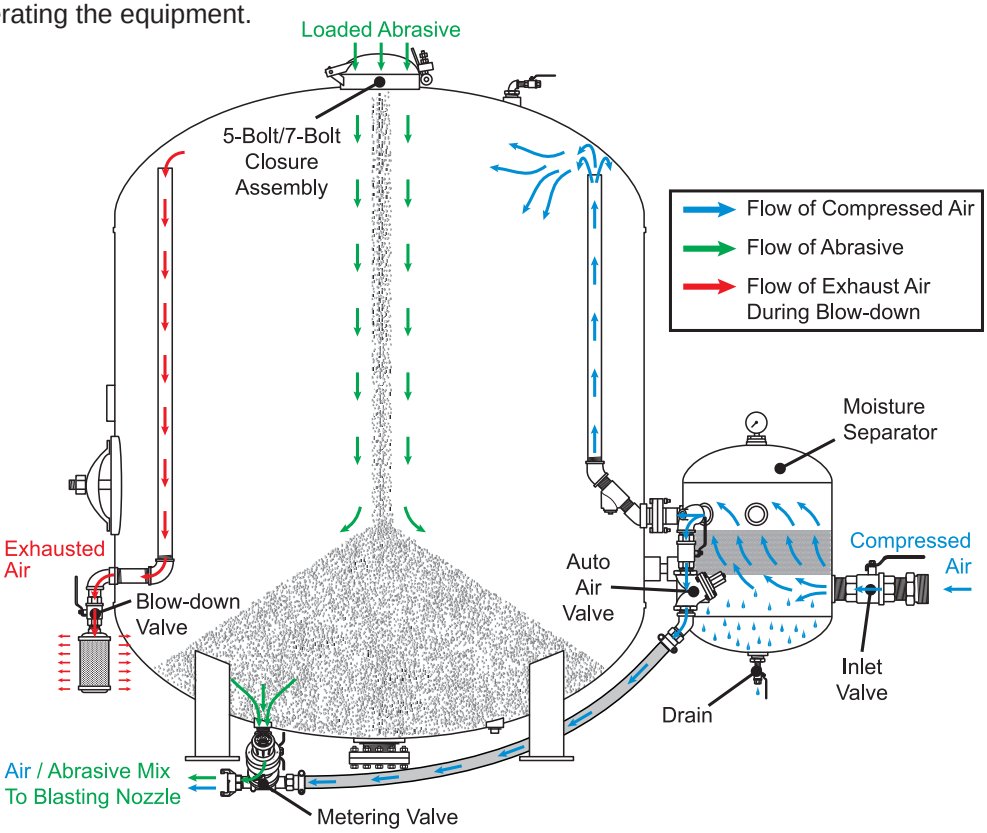
How SPH Bulk Systems Work (Pressure Hold)

WARNING: This section of the manual is designed to give you a general understanding of how the Abrasive Blaster functions. **All** sections of this manual must be read and understood before operating the equipment.



ADDING ABRASIVE

Abrasive is added through the 5-Bolt/7-Bolt Closure Assembly at the top of the Abrasive Blaster. When abrasive is added, it flows down through the hole, around the Double Seal Posi Seal Valve (If Equipped), and down to the bottom of the pressure vessel where it will exit through the Metering Valve when blasting is started.

PRESSURIZATION

Before pressurization can take place in a pressure hold system, the Blow-down Valve must be closed, and the 5-Bolt/7-Bolt Closure Assembly must be properly closed according to the procedures described in the "Operating Procedures" section of this manual on blasters not equipped with the Double Seal Posi Seal Valve. Then, when a compressed air source (such as an air-compressor) is connected to the inlet of the Abrasive Blaster and the Inlet Valve is opened, compressed air can flow through the Moisture Separator and into the pressure vessel causing the pressure vessel to fill with compressed air. When the control handle is activated, the Auto Air Valve and Metering Valve open allowing compressed air & abrasive to flow and mix. The mixture of compressed air and abrasive will now exit the Abrasive Blaster through a blast hose and nozzle connected to the coupling on the Metering Valve and blasting begins.

DEPRESSURIZATION (BLOW-DOWN)

When the control handle is released in a pressure hold (SPH) system, the pressure vessel remains filled with compressed air. The compressed air remaining in the pressure vessel is released when the inlet valve is manually closed and the blow-down valve is manually opened.

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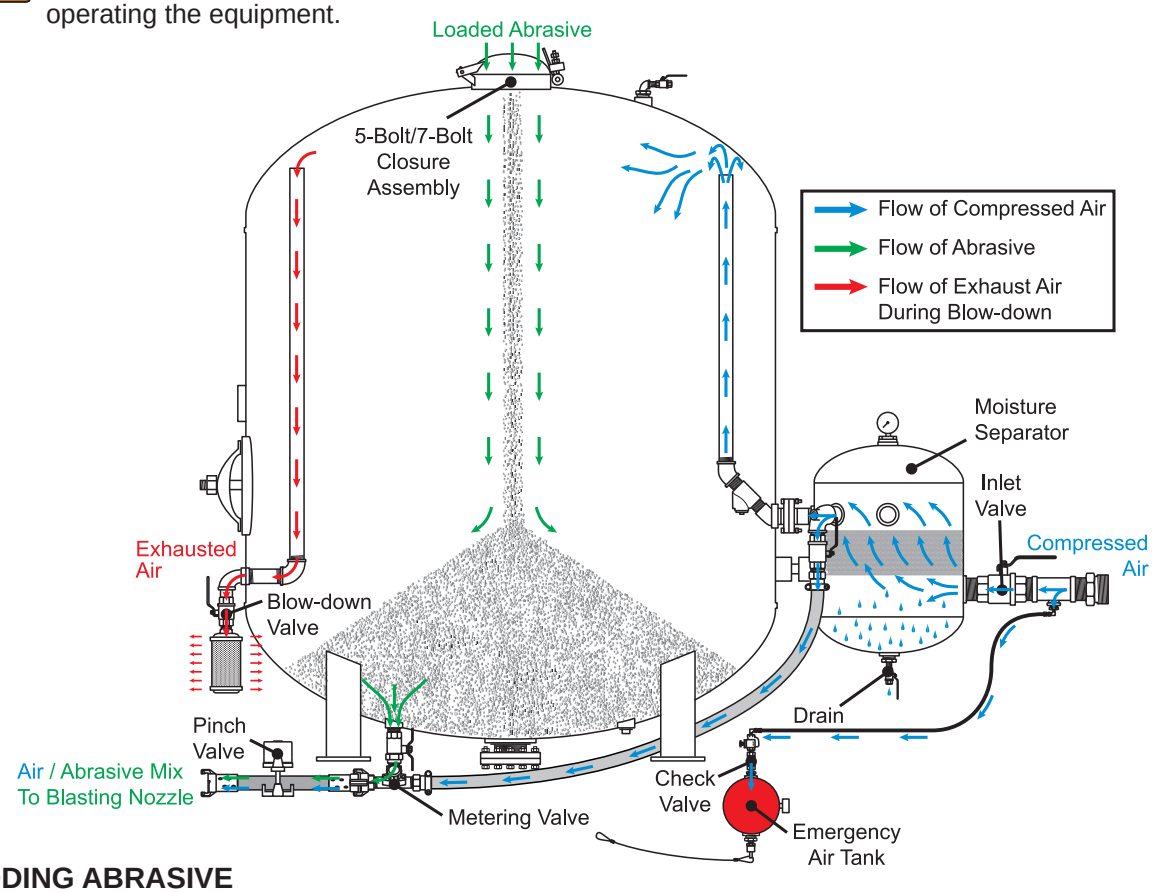
How SPH Pinch Bulk Systems Work (Pressure Hold)

WARNING: This section of the manual is designed to give you a general understanding of how the Abrasive Blaster functions. **All** sections of this manual must be read and understood before operating the equipment.



ADDING ABRASIVE

Abrasive is added through the 5-Bolt/7-Bolt Closure Assembly at the top of the Abrasive Blaster. When abrasive is added, it flows down through the hole, around the Double Seal Posi Seal Valve (If Equipped), and down to the bottom of the pressure vessel where it will exit through the Metering Valve when blasting is started.

PRESSURIZATION

Before pressurization can take place in a pressure hold system, the Blow-down and Inlet Valves must be closed, and the 5-Bolt/7-Bolt Closure Assembly must be properly closed according to the procedures described in the "Operating Procedures" section of this manual on blasters not equipped with the Double Seal Posi Seal Valve. Then, when a compressed air source (such as an air-compressor) is connected to the inlet of the Abrasive Blaster and turned on, the Emergency Air Tank is pressurized and the Pinch Valves close. The Emergency Air Tank is a safety feature that will store a reserve of compressed air that will be available to close the pinch valves in the event of a compressor failure. When the Inlet Valve is opened, compressed air can flow through the Moisture Separator and into the pressure vessel causing the pressure vessel to fill with compressed air. When the control handle is activated, the Pinch Valve opens allowing compressed air & abrasive to flow. The mixture of compressed air and abrasive will now exit the Abrasive Blaster through a blast hose and nozzle connected to the coupling on the Pinch Valve hose and blasting begins.

DEPRESSURIZATION (BLOW-DOWN)

When the control handle is released in a pressure hold (SPH) system, the pressure vessel remains filled with compressed air. The compressed air remaining in the pressure vessel is released when the inlet valve is manually closed and the blow-down valve is manually opened.

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OPERATING PROCEDURES

WARNING: The Procedures provided in the Operating Procedures section of the manual are designed to provide basic information on how to safely operate the features of Pirate Brand® SPH/SPR Series Abrasive Blasters. Only personnel thoroughly trained in abrasive blasting should operate the Abrasive Blaster.

SETTING-UP THE BLASTER

INSPECT PRESSURE VESSEL

When you receive your Abrasive Blaster, remove the Manway Assembly and check for foreign items that may have fallen into the Abrasive Blaster. Remove any foreign materials and reinstall the Manway Assembly.

DANGER: Never perform any maintenance or attempt to open the Abrasive Blaster in any way while it is pressurized. The violent release of compressed air and propelled objects will cause serious injury or death.

RE-TIGHTEN MANWAY ASSEMBLY

After the Abrasive Blaster has been pressurized for the first time, tighten the nuts on the Manway Assembly. Tightening the nuts on the Manway Assembly should also be done any time after the Manway has been removed for maintenance before and after the next pressurization.

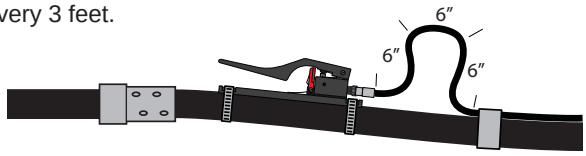
DANGER: Never perform any maintenance or attempt to open the Abrasive Blaster in any way while it is pressurized. The violent release of compressed air and propelled objects will cause serious injury or death.

PURGE AIR SUPPLY HOSE

Before connecting the Air Supply Hose to the Abrasive Blaster, purge the hose of any moisture or foreign debris. Standing water or moisture in the air line will cause degraded performance of the Abrasive Blaster. Air supplied to the Abrasive Blaster must be clean, dry and cool.

ATTACH REMOTE CONTROL HANDLES

Attach the Remote Control Handle to the Blast Hose near the Nozzle with hose clamps or heavy wire ties. Form a loop of Twinline/Control Cord that comes 6” away from the Blast Hose, runs 6” parallel to the Blast Hose, and comes 6” back to the Blast Hose. Using duct tape, attach the Twinline/Control Cord to the Blast Hose where the loop ends by wrapping the tape around the Blast Hose twice and then around the Twinline/Control Cord. This creates a strain-relief attachment and is only necessary on the first connection near the Control Handle. Starting from the Nozzle end of the Blast Hose, attach the Twinline/Control Cord to the blast hose by wrapping duct tape around both every 3 feet.



SETTING UP, OPENING AND CLOSING THE 5-BOLT/7-BOLT CLOSURE ASSEMBLY

Proper use 5-Bolt/7-Bolt Closure Assembly is to set the torque properly on the T-bolt nuts, and use the cams to open an close the lid by hand. See the “MAINTENANCE PROCEDURES” section for details on how to set the torque.

To open the 5-Bolt/7-Bolt Closure Assembly, the pressure vessel must be fully depressurized. Use the safety valve to check for the presence of compressed air before attempting to open. Once the absence of pressure has been confirmed, swing the cam arms down in alternating sequence while leaving the T-bolts that hold the lid down in place. Once all the cam arms are swung down, swing the T-bolts down in alternating sequence untill all are down and the lid can be swung open. **If at any point during the opening process air can be heard or felt escaping around the lid, STOP IMMEDIEATELY, the vessel is still pressurized!** To close the 5-Bolt/7-Bolt Closure Assembly, perform the reverse of the opening procedure. See page 13 for diagram of cam.

WARNING: When the torque is set properly, the cam arms should be able to be swung into place by hand. NEVER use a tool or extension bar to force the cam arms into place

DANGER: Always use the safety valve on top of the pressure vessel to check for the presence of compressed air before opening the 5-Bolt/7-Bolt Closure Assembly. If you hear air escaping when you open the safety valve, the vessel is still pressurized. Never attempt to open the Abrasive Blaster while it is pressurized.

This label is located on top of the pressure vessel around the Safety Valve

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OPERATING PROCEDURES

BEFORE YOU BLAST

PRE-BLAST CHECK

Before each use of the Abrasive Blaster, it must be checked to ensure it is in a safe condition to be used. Closely examine all components of the Abrasive Blaster for signs of excessive wear, worn out seals and hoses, or damaged components. If any component of the Abrasive Blaster is found to be damaged or worn, it must be replaced before blasting.

WARNING: Never use an Abrasive Blaster if any components are damaged or worn. Damaged or worn parts must be replaced before use.

ADDING ABRASIVE

Before filling the Abrasive Blaster, make sure the inlet valve is closed and the pressure vessel is in a depressurized state. Abrasive is added by pouring it into the top of the Abrasive Blaster where the abrasive can flow through the opening and into the pressure vessel (see pg. 10 for opening instructions). Do not overfill the Abrasive Blaster. Do not allow foreign materials to enter the Abrasive Blaster.

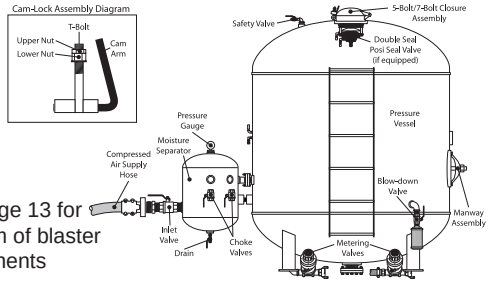
DANGER: Never reach into the opening while filling the Abrasive Blaster. The 5-Bolt/7-Bolt closure assembly and/or the Double Seal Posi Seal Valve can close causing severe injury.

WARNING: Pirate Brand® Abrasive Blasters may not be used with abrasives containing silica. Never use abrasives containing silica.

WARNING: Never fill the abrasive blaster with the inlet valve in the open position. Always close the inlet valve before filling.

WARNING: Electrically conductive abrasives may not be used with abrasive blasters using Electric Remote Control Systems without changing to sealed strain relief connectors.

WARNING: Never attempt to move or transport the Abrasive Blaster at more than 15mph when it contains Abrasive.



See page 13 for diagram of blaster components

REMOTE CONTROL SYSTEM

Abrasive Blasters must use a Remote Control System (commonly known as deadman) to start and stop abrasive blasting. Remote Control Systems can be electric or pneumatic.

Electric: Connect the Remote Control to the Abrasive Blaster's female twist-lock connector associated with the outlet you want to blast with. Connect a 12 VDC power source (12V Battery or Optional 120 VAC to 12 VDC converter) to the Abrasive Blaster's male twist-lock connector.

Pneumatic: Connect the Remote Control twinline hose to the quick disconnect fittings associated with the outlet you want to blast with on the Abrasive Blaster. The twinline hose is supplied with different size fittings on each of the 2 lines to prevent them from being connected to the Abrasive Blaster incorrectly. Do not modify or reverse these fittings. It is not recommended that Pneumatic Remote Control Systems are used when the Blast Hose length will be longer than 100 feet.

WARNING: Never operate the Abrasive Blaster without a Remote Control System.

WARNING: Never use bleeder type Remote Control Handles such as Clemco® or A-BEC® style handles with Pirate-Brand® SPH/SPH PINCH Series Eqipment as they may cause the Abrasive Blaster to start without warning or to not stop the Abrasive Blaster when released.

WARNING: Never reverse or modify pneumatic Remote Control twinline hose fittings.

DANGER: Always use caution around electric sources to avoid electric shock. Do not operate electrical remote controlled Abrasive Blasters in wet or other hazardous environments

CONNECTING HOSES

Before connecting hoses to the Abrasive Blaster, make sure the Inlet Valve is closed and the compressed air supply is shut off. Connect the hose coming from the compressed air supply to the inlet on the Abrasive Blaster and secure with safety clips. Connect the blast hose to the coupling on the Metering Valve at the base of the Abrasive Blaster and secure with safety clips or mechanics/safety wire when using BIG GUN couplings.

WARNING: Always use safety devices like clips and whip-checks (safety cables) at hose connections. BIG GUN couplings require the use of safety/mechanics wire for proper securing.

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OPERATING PROCEDURES

BLASTING

PRESSURIZING THE ABRASIVE BLASTER

Before pressurizing the Abrasive Blaster make sure the following conditions occur:

- All "BEFORE YOU BLAST" procedures have been followed.
- The Inlet Valve is closed.
- The Blow-down Valve is closed
- The 5-Bolt/7-Bolt Closure Assembly is properly closed (blasters not equipped with Double Seal Posi Seal Valve).
- The Remote Control Handles are released.
- All hose connections are secure and have a safety clip or safety/mechanics wire installed.
- The Abrasive Blaster is set up in a safe and level location where all people in the vicinity are aware of its presence.
- All necessary safety equipment is present and being worn by all people in the vicinity of the Abrasive Blaster.
- Only personnel who have been thoroughly trained and have read and understand the manual are in the vicinity of the Abrasive Blaster

When these conditions are met, turn on the compressed air source. For SPH PINCH systems, allow the Emergency Air Tank to become fully pressurized to at least 100 PSI (6.89 BAR) before continuing. Use the supplied pressure gauge on the emergency tank to check for pressurization. Open the Inlet Valve on the Abrasive Blaster. The Abrasive Blaster is now ready to begin blasting.

DANGER: Never perform any maintenance or attempt to open the Abrasive Blaster in any way while it is pressurized. The violent release of compressed air and propelled objects will cause serious injury or death.

DANGER: Never supply compressed air exceeding 150 PSI (10.3 BAR) to the Abrasive Blaster.

DANGER: Never operate a SPH PINCH system if Emergency Air Tank is not fully pressurized to at least 100 PSI. If the Emergency Air Tank is found to not be holding pressure, discontinue use of the blaster until repairs are made.

WARNING: Blast Hose may kick back when Remote Control Handle is activated. Be prepared and brace yourself for kick back. Blasters with MPV Metering Valves or #100 Metering Valves will normally kick back erratically for a short time when started.

WARNING: All those who will be in the area while blasting is to occur must be properly trained, read the manual, and be wearing safety equipment to protect from the hazards described by the WARNING and DANGER labels located on the Abrasive Blaster. If any labels are worn or missing they must be replaced.

USING THE ABRASIVE BLASTER

After pressurizing the Abrasive Blaster, it is ready to begin blasting. Press the safety button or push down the safety flap and squeeze the Remote Control Handle to start the flow of abrasive and compressed air. Adjustments to the air/abrasive mixture can be made by turning the handle on the APV and MPV Series Metering Valves. For #100 Metering Valves, the flow of abrasive can be increased by loosening the nuts on the top of the valve, and decreased by tightening the nuts. There will be a delay between a change made at the Metering Valve and what comes out of the Nozzle depending on the length of Blast Hose being used. Adjustments to the Metering Valve can only be made when Abrasive Blaster is not in operation.

To stop the flow of compressed air and abrasive, release the Remote Control Handle and blasting will stop after a short time. How long it takes for blasting to stop will depend on the length of Blast Hose being used.

DANGER: Airborne particles produced by abrasive blasting can cause respiratory disease. All persons operating or located near the blasting site must wear approved NIOSH / OSHA approved breathing equipment. Never use abrasive containing silica.

WARNING: Only personnel thoroughly trained in abrasive blasting should operate the Abrasive Blaster. This manual only provides basic information on how to safely operate the features of Pirate Brand® SPH/SPH PINCH Series Abrasive Blasters.

WARNING: Never point the blast Nozzle at yourself, other people, or the Abrasive Blaster.

WARNING: The Choke Valve must be completely open when blasting or damage to equipment will occur.

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OPERATING PROCEDURES

BLASTING

DRAINING THE MOISTURE SEPARATOR OR AIR MANIFOLD

During blasting, the Moisture Separator/Air Manifold must be periodically drained. The best way to accomplish this is to leave the drain valve slightly open all the time so it constantly leaks air and forces moisture out.

WARNING: The Abrasive Blaster must be supplied with clean, cool, dry compressed air in order to function properly. The 1600 Moisture Separator (if equipped) may not be sufficient to achieve this depending on the quality of the air being supplied.

SHUTTING DOWN THE ABRASIVE BLASTER

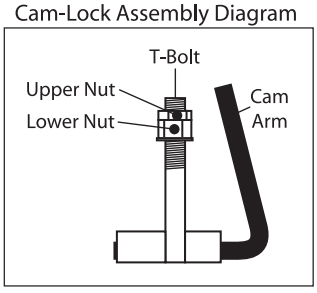
When blasting is complete, the Abrasive Blaster will need to be shut down. Make sure the Remote Control Handles are released, then close the Inlet Valve. Slowly open the Blow-down Valve to allow the compressed air stored in the Abrasive Blaster to escape.

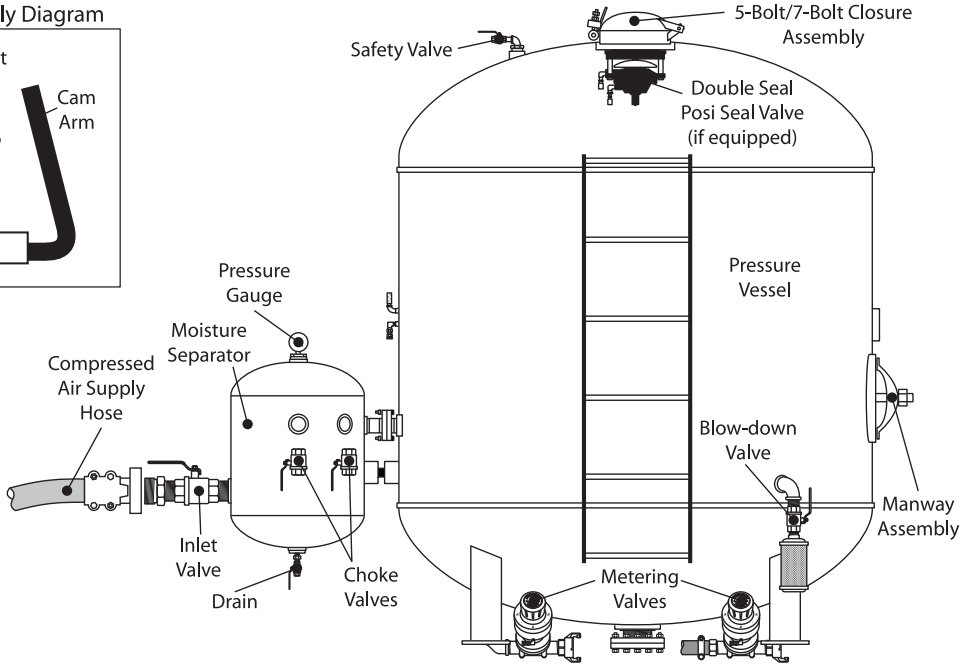
DISCONNECTING AIR SUPPLY HOSE

After the Abrasive Blaster has been depressurized, and the Inlet Valve has been closed, the Compressed Air Supply Hose may still contain pressure which must be released before disconnecting the hose. To do this shut off the compressed air at its source, and open the Drain Valve and Blow-Down Valve on the Abrasive Blaster. Slowly open the inlet valve on the Abrasive Blaster. The compressed air stored in the Compressed Air Supply Hose can now escape through the Drain Valve. When you no longer hear air escaping through the drain valve, squeeze the Compressed Air Supply Hose to confirm the absence of compressed air. After confirming the absence of compressed air in the Compressed Air Supply Hose it is ready to be disconnected. For SPH PINCH systems, the Emergency Air Tank should still be pressurized at this point and is ready for its required daily maintenance inspection (see "MAINTENANCE PROCEDURES" section for details). After performing the maintenance inspection, The Emergency Air Tank drain may now be opened to drain any collected moisture and depressurize the emergency air tank.

DANGER: Never disconnect any compressed air supply hose without first performing the "DISCONNECTING AIR SUPPLY HOSE" procedure described above. Failure to do so can cause the hose to blow off violently injuring or killing nearby people.

Cam-Lock Assembly Diagram





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MAINTENANCE PROCEDURES

Maintenance Schedule

DANGER: Never perform any maintenance or attempt to open the Abrasive Blaster in any way while it is pressurized. The violent release of compressed air and propelled objects will cause serious injury or death.

WARNING: Maintenance procedures are to be performed by experienced qualified personnel only. Failure to perform maintenance procedures correctly at the intervals specified below can lead to performance problems and equipment failure, and will void the equipment warranty.

Procedure to be Performed	Maintenance Interval
1 Inspect Personal Protective Equipment (PPE) Including but not limited to: Respirators, Airline Filters, Carbon-Monoxide Monitors, Hearing Protection, Eye Protection, Foot Protection, Protective Clothing & Gloves. Reference www.osha.gov 29 CFR 1910.132 - General Requirements (PPE) 29 CFR 1910.133 - Eye (PPE) 29 CFR 1910.134 - Respiratory (PPE) 29 CFR 1910.136 - Feet (PPE) 29 CFR 1910.138 - Protective Clothing & Gloves (PPE) 26 CFR 1926.101 - Hearing (PPE)	Every 8 Hours Of Use
2 Inspect Remote Control Handle(s) and Control Hose/Cord	Every 8 Hours Of Use
3 Inspect Blast Hose, Couplings & Gaskets	Every 8 Hours Of Use
4 Inspect Blasting Nozzle	Every 8 Hours Of Use
5 Inspect Air Hose, Couplings & Gaskets	Every 8 Hours Of Use
6 Inspect Emergency Air Tank for Bleed Down (SPH PINCH Only)	Every 8 Hours Of Use
7 Inspect & Clean Blow-down Muffler (If Equipped)	Every 40 Hours Of Use
8 Inspect, Re-torque & Service 5-Bolt/7-Bolt Closure Assembly	Every 200 Hours Of Use
9 Inspect Double Seal Posi Seal Valve (If Equipped)	Every 200 Hours Of Use
10 Service #400 Pinch Valve(s) (SPH PINCH Only)	Every 200 Hours Of Use
11 Service Metering Valve(s)	Every 600 Hours Of Use
12 Service Auto Air Valve(s) (If Equipped)	Every 600 Hours Of Use
13 Service Control Valve(s)	Every 600 Hours Of Use

Descriptions of maintenance procedures referenced in this table are located on the next page.

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MAINTENANCE PROCEDURES

Procedure Details

1. Inspect Personal Protective Equipment (PPE)

Inspect **ALL** Personal Protective Equipment (PPE) for proper fit, condition & operation as designed. Replace, repair, or be fitted as needed.

2. Inspect Remote Control Handle(s) and Control Hose/Cord

Pneumatic Remote Control Systems:

Inspect Control Handle for damage making sure the Safety Flap/Lever Lock/Button is in good working order and replace or repair as needed. Inspect twinline hoses and replace if leaks, areas that show abrasion, or soft spots are found.

Electric Remote Control Systems:

Inspect Control Handle for damage making sure the Safety Flap/Lever Lock/Button is in good working order and replace or repair as needed. Inspect control cord and replace if damaged plug ends, areas that show abrasion, exposed wires, or cracks are found.

3. Inspect Blast Hose, Couplings & Gaskets

Inspect Blast Hose for leaks, abrasion & soft spots, and replace as needed. Inspect couplings for damage, leaks & wear, and replace as needed. Inspect coupling gaskets for leaks & wear, and replace as needed. Always use safety clips & whip checks (safety cables) at Blast Hose connections. BIG GUN couplings require the use of safety/mechanics wire for proper securing.

4. Inspect Blasting Nozzle

Inspect the Blasting Nozzle for wear and proper bore diameter. Replace the Blasting Nozzle when the bore diameter has worn to 1/16" wider than its original diameter. Example: replace a #5 nozzle (5/16" bore) when the bore reaches 3/8"

5. Inspect Air Hose, Couplings & Gaskets

Inspect Air Hose for leaks, abrasion & soft spots, and replace as needed. Inspect couplings for damage, leaks & wear, and replace as needed. Inspect coupling gaskets for leaks & wear, and replace as needed. Always use safety clips & whip checks (safety cables) at Air Hose connections.

6. Inspect Emergency Air Tank For Bleed Down

After depressurizing the pressure vessel and disconnecting the air supply hose as described in the "OPERATING PROCEDURES" Section, watch the pressure gauge on the Emergency Air Tank. If the Emergency Air Tank system is working properly, the pressure contained in the tank will not drop. If it does, discontinue use of the blast equipment until the problem is corrected. Possible causes of bleed down are:

A. The #400 Pinch Valve(s) are leaking and need to be serviced.
B. The Check Valve on the Emergency Air Tank is damaged, defective or worn out and needs to be replaced.
C. The Pull Cord Drain Valve is damaged, defective or worn out and needs to be replaced.
D. The air supply hoses between the Emergency Air Tank and the #400 Pinch Valves are leaking.

7. Inspect & Clean Blow-down Muffler

Remove the Blow-down muffler, turn it upside-down and tap on a hard surface to free trapped debris. If muffler is clogged and can't be cleaned out sufficiently, it must be replaced.

8. Inspect, Re-torque & Service 5-Bolt/7-Bolt Closure Assembly

To set the torque on each of the cam-locks, close the lid, swing the T-bolts into position and swing the cam arms up. Tighten the lower nut on each T-bolt to 20 ft-lb, then using 2 wrenches, hold the lower nut in place while tightening the upper nut snugly against the lower nut to prevent loosening. Lubricate the cams with a penetrating oil to ensure the cams don't seize up with rust and can be swung into place easily. Inspect the closure O-ring and replace if leaking.

9. Inspect Double Seal Posi Seal Valve

Inspect the Double Seal Posi Seal Valve and supply lines for proper operation and leaks.

10. Service #400 Pinch Valve(s)

Disassemble, clean & inspect the #400 Pinch Valves for proper operation and worn components. Replace any worn components and lubricate with anti-seize before reassembling.

11. Service Metering Valve(s)

Disassemble, clean & inspect the Metering Valve for proper operation and worn components. Replace any worn components found. Lubricate APV & APVII valves with anti-seize before reassembling.

12. Service Auto Air Valve(s)

Disassemble, clean & inspect for proper operation and worn components. Replace any worn components found. Lubricate with anti-seize before reassembling.

13. Service Control Valve(s)

Disassemble, clean & inspect for proper operation and worn components. Replace any worn components found. Lubricate with anti-seize before reassembling.

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TROUBLESHOOTING

Performance Related Issues

DANGER: Never attempt to open the Abrasive Blaster in any way while it is pressurized. Use extreme caution when performing troubleshooting procedures that involve pressurizing the Abrasive Blaster. Troubleshooting procedures are to be performed by experienced qualified personnel only.

NO ABRASIVE FLOW WHEN BLASTING (AIR ONLY)

Possible Causes:

1. The Abrasive Blaster is empty or has no Abrasive in it.

2. The Union-end Ball Valve above the Metering Valve is closed (if equipped).

3. Abrasive cut-off function is engaged halting the flow of abrasive (if equipped).

4. The Metering Valve is closed or has not been adjusted properly. If the Metering Valve is an APV or APVII and you are concerned the valve is not opening, the following test can be performed:

Close the Metering Valve fully by turning the knob clockwise until it stops, then turn the knob counter-clockwise about 9 full turns. Close the Union-end Ball Valve above the Metering Valve (if equipped). Close the Choke Valve, then depress the control handle and check to see if the knob is hard to turn or if it will not turn at all. If the knob is hard to turn or will not turn at all then the Metering Valve is opening properly. Lastly, release the control handle and open the Choke Valve and Union-end Ball Valve located above the Metering Valve if equipped.

5. There is an obstruction in the Metering Valve. To clear the obstruction for APV series, MPV series & #100 Metering Valves, perform the following procedure:

Turn the knob on the Metering Valve clockwise until it stops and then turn the knob counter-clockwise 9 full turns to open it completely. Depress the control handle and have a second qualified person close the choke valve for 2 seconds, and then open it again immediately. This will push minor obstructions such as a small amount of wet abrasive, a piece of paper from a bag, or bridged paint chips through the Metering Valve and out the Nozzle. Readjust the Metering Valve back to the desired setting for blasting, and check to see if the obstruction has been cleared.

If there is still an obstruction and your Abrasive Blaster is equipped with a Union-end Ball Valve above the Metering Valve, close the Union-end Ball Valve and depressurize the Abrasive Blaster. Remove the Metering Valve by loosening the union on the Union-end Ball Valve. With the Metering Valve removed and the Abrasive Blaster depressurized, open the Union-end Ball Valve slowly to see if a steady stream of abrasive falls out. If you do not see a steady stream of abrasive there is a large obstruction such as a large piece of paper from a bag of abrasive. If your Abrasive Blaster is not equipped with a Union-end Ball Valve, then you must depressurize the Abrasive Blaster, remove the pusher line, and remove the Metering Valve to check for a steady stream of abrasive. If abrasive flows, wait until the Abrasive Blaster is empty before reinstalling the Metering Valve.

If you have determined there is a large obstruction, then the obstruction must be removed from inside the Pressure Vessel. To do this, make sure the Abrasive Blaster is depressurized and open the 4" Blind Flange Assembly or 4" Plug under the pressure vessel to remove as much abrasive as possible. Then remove the Manway Assembly and remove the obstruction. Reinstall the Manway Assembly and Metering Valve, and tighten them securely, then Refill the Abrasive Blaster.

6. The Abrasive Blaster has wet abrasive in it. The wet abrasive must be removed by depressurizing the Abrasive Blaster, draining as much of the abrasive as possible through the 4" Blind Flange Assembly or 4" Plug under the pressure vesel, then removing the Manway Assembly, and scooping or vacuuming it out.

Dry abrasive must always be used. Clean, cool, dry air must be supplied to the Abrasive Blaster in order to prevent the abrasive from getting wet.

ABRASIVE STREAM IS TOO HEAVY OR THROBBING WHEN BLASTING

Possible Causes:

1. Choke Valve is partially closed. Never run the Abrasive Blaster with the Choke Valve in any other position except fully open or damage to the Abrasive Blaster will occur.

2. The Metering Valve needs to be adjusted.

LOW PRESSURE AT THE NOZZLE

Possible Causes:

1. Air compressor is the wrong size (too small) or the load button has not been pushed or turned on.

2. Nozzle is worn out and the compressor cannot keep up with the increased demand.

3. Air supply hose to the blast machine is too small.

4. There is a hole in the blast hose.

5. Manway Assembly is leaking.

6. Dirty or clogged Auto Air Valve Vent (if equipped).

7. Diaphragm in Auto Air Valve is damaged, defective, or worn out (if equipped). To test, put your thumb over the vent. If any air is coming out with the control handle depressed, the diaphragm must be replaced.

8. Choke Valve is partially closed. Never run the Abrasive Blaster with the Choke Valve in any other position except fully open or damage to the Abrasive Blaster will occur.

9. Abrasive Metering Valve is open too far.

10. Obstruction in Nozzle.

11. Regulator needs adjustment (if equipped).

ABRASIVE BLASTER WILL NOT TURN ON OR IS SLOW TO TURN ON

Possible Causes:

1. Air compressor is the wrong size (too small) or the load button has not been pushed or turned on.

2. Nozzle is worn out and the compressor cannot keep up with the increased demand.

3. Air supply hose to the blast machine is too small.

4. Control hoses and/or fittings are leaking.

5. 90 micron strainer clogged (if equipped)

6. Obstruction in Nozzle.

7. Dirty or clogged Auto Air Valve Vent (if equipped).

8. The Pneumatic Control Handle is damaged, defective or worn out (if equipped).

9. The Electric Control Handle is damaged, defective or worn out (if equipped).

10. The Electric Control Coil(s) are defective (if equipped).

11. Power Source (battery or AC-DC converter) is not providing sufficient power to open electric control valves (if equipped).

12. The Electric Control Cord is damaged, defective or worn out (if equipped).

13. Control Valve stuck or in need of service due to lack of lubrication, or is damaged, defective or worn out (if equipped).

14. Diaphragm in Auto Air Valve is damaged, defective, or worn out (if equipped). To test, put your thumb over the vent. If any air is coming out with the control handle depressed, the diaphragm must be replaced.

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TROUBLESHOOTING

Operational Related Issues

DANGER: Never attempt to open the Abrasive Blaster in any way while it is pressurized. Use extreme caution when performing troubleshooting procedures that involve pressurizing the Abrasive Blaster. Troubleshooting procedures are to be performed by experienced qualified personnel only.

BLAST MACHINE TURNS ON ACCIDENTALLY OR WITHOUT WARNING

Possible Causes:

1. The safety flap, lever or lock button on the Control Handle is damaged or missing.
2. The Pneumatic Control Handle is damaged, defective or worn out (if equipped).
3. A bleeder type control handle has been installed.

WARNING: Never use bleeder type Remote Control Handles such as Clemco® or A-BEC® style handles with Pirate-Brand® SPH/SPH PINCH as they may cause the Abrasive Blaster to start without warning or to not stop the Abrasive Blaster when released.

4. The Electric Control Handle is damaged, defective or worn out (if equipped).
5. The Electric Control Cord is damaged, defective or worn out (if equipped).
6. "O"-ring on the shaft of the Auto Air Valve is damaged, defective or worn out (if equipped).

BLAST MACHINE IS SLOW TO TURN OFF OR WILL NOT TURN OFF WHEN CONTROL HANDLE IS RELEASED

Possible Causes:

1. A bleeder type control handle has been installed.

WARNING: Never use bleeder type Remote Control Handles such as Clemco® or A-BEC® style handles with Pirate-Brand® SPH/SPH PINCH as they may cause the Abrasive Blaster to start without warning or to not stop the Abrasive Blaster when released.

2. The Pneumatic Control Handle is damaged, defective or worn out (if equipped).
3. The Electric Control Handle is damaged, defective or worn out (if equipped).
4. The Electric Control Cord is damaged, defective or worn out (if equipped).
5. The Control Valve is stuck or in need of service due to lack of lubrication, or is damaged, defective or worn out.
6. #400 Pinch Valve is stuck or in need of service due to lack of lubrication, or is damaged, defective or worn out (if equipped).
7. #400 Pinch Valves do not have the required 100 PSI minimum supplied to them from the emergency air tank (if equipped). Check the air lines to and from the emergency air tank for leaks. Check the 90 Micron Strainer for clogging and clean or replace if necessary.

ABRASIVE BLASTER AIR BLAST STOPS BUT ABRASIVE KEEPS FLOWING WHEN CONTROL HANDLE IS RELEASED (SYSTEMS WITH APV SERIES METERING VALVES ONLY)

Possible Causes:

1. The Urethane Seat (black) in the Metering Valve is damaged, defective or worn out.
2. The Urethane Sleeve (black) in the Metering Valve is damaged, defective, or worn out.
3. The Plunger (tungsten carbide) in the Metering Valve is damaged, defective, or worn out.
4. Foreign material is stuck between the Plunger and the Seat in the Metering Valve.
5. The Metering Valve Spring is damaged, defective, or worn out.

BLAST MACHINE ABRASIVE STOPS BUT AIR BLAST WILL NOT SHUT OFF WHEN CONTROL HANDLE IS RELEASED

Possible Causes:

1. Auto Air Valve Seat is damaged, defective, or worn out.
2. Auto Air Valve Disc is damaged, defective, or worn out.
3. "O"-ring on the Auto Air Valve Shaft is damaged, defective or worn out.
4. Auto Air Valve Spring is damaged, defective, or worn out.

DOUBLE SEAL POSI SEAL VALVE IS SLOW TO CLOSE OR WILL NOT CLOSE (IF EQUIPPED)

Possible Causes:

1. 90 Micron Strainer is clogged and needs to be cleaned or replaced.
2. The Diaphragm is leaking or has ruptured and needs to be replaced. To bench test for this problem, connect an air supply to the inlet side of the Double Seal Posi Seal Valve and leave the outlet port open. Pressurize the inlet side of the valve making sure to keep fingers clear of the pinch point between the dish and urethane ring. There should be a quick burst of air from the outlet port of the valve. If air continues to escape from the outlet port after the valve has closed, then the diaphragm is leaking or ruptured.
3. The air supply hoses to the valve are leaking or have ruptured.

EMERGENCY AIR TANK DOES NOT HOLD PRESSURE

See "MAINTENANCE PROCEDURES" section for diagnosis and repair information.

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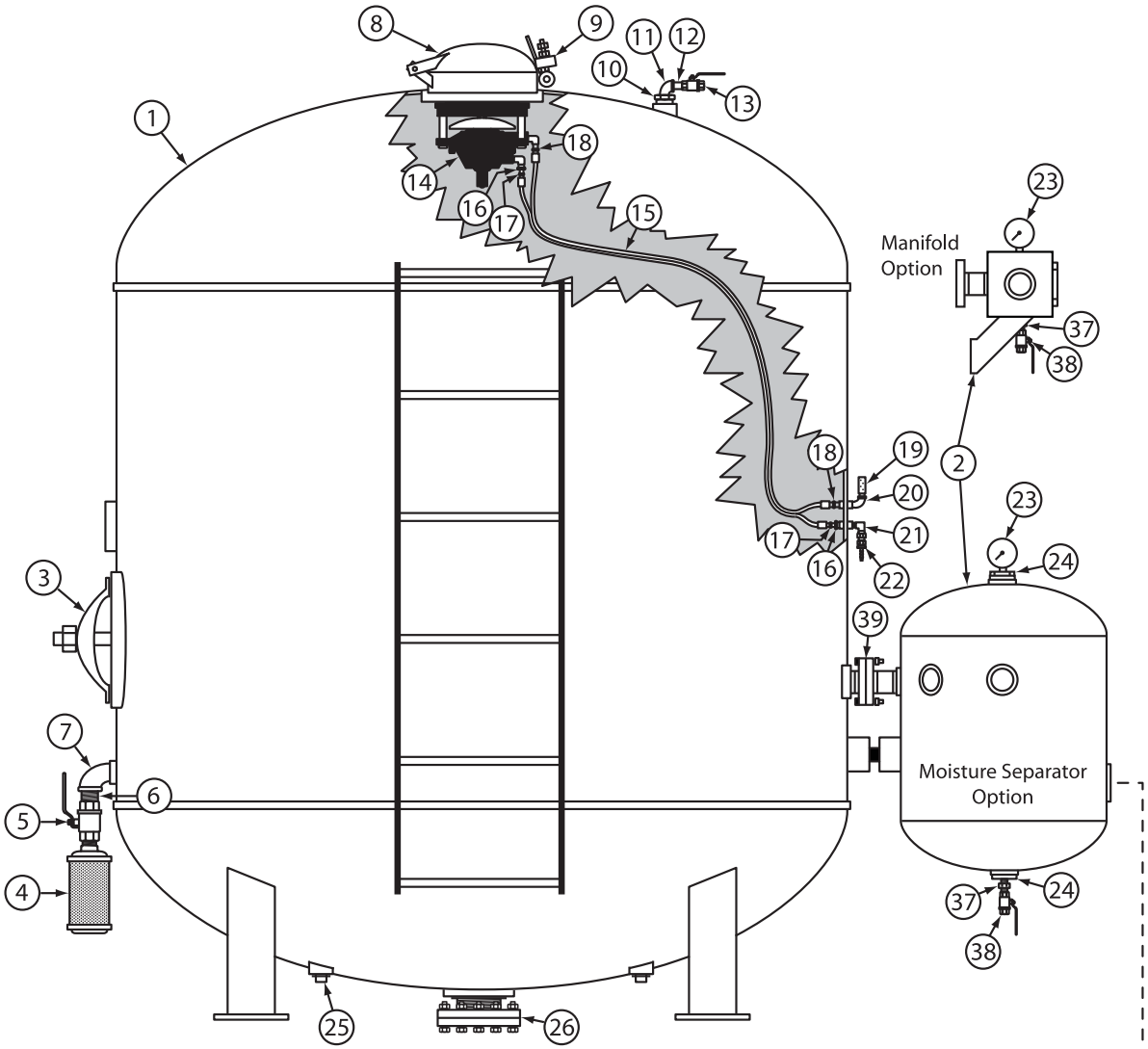
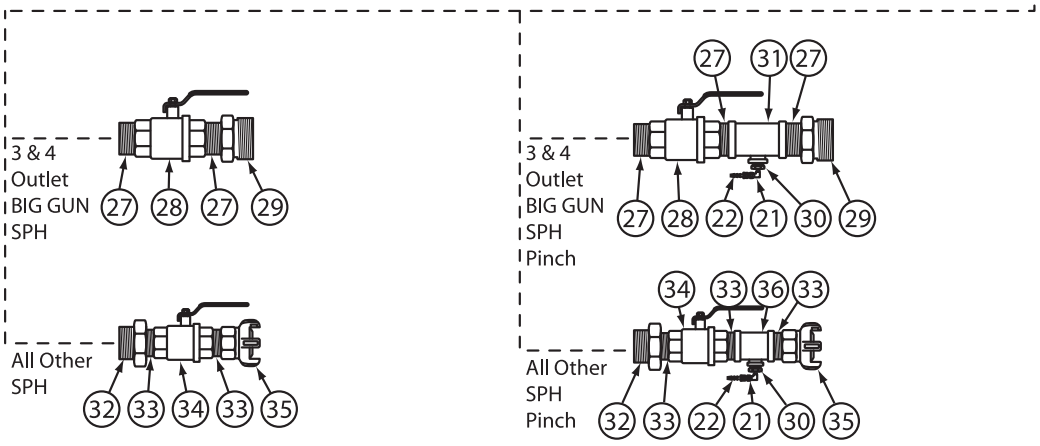
PRESSURE VESSEL PARTS LIST





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PRESSURE VESSEL PARTS LIST

1	888-1014-120PB	VESSEL, 120 CU.FT. (3398 LITERS), 150 PSI (10.3 BAR), 4 OUTLET INCLUDES MANWAY ASSY (PAINTED), PIRATE BRAND
	888-1014-160PB	VESSEL, 160 CU.FT. (4531 LITERS), 150 PSI (10.3 BAR), 4 OUTLET INCLUDES MANWAY ASSY & 10" 5-BOLT CLOSURE, POSI-SEAL AND BULK BAG RACK READY (PAINTED), PIRATE BRAND
	888-1014-16016PB	VESSEL, 160 CU.FT. (4531 LITERS), 150 PSI (10.3 BAR), 4 OUTLET INCLUDES MANWAY ASSY & 16" 7-BOLT CLOSURE, BULK BAG RACK READY (PAINTED), PIRATE BRAND
2	888-1200-16201PB	MOISTURE SEPARATOR 1600 CFM FLANGE MOUNTED, 150 PSI (10.3 BAR), (1) 3" x (5) 1-1/2" (PAINTED), PIRATE BRAND
	888-1200-08004PB	MOISTURE SEPARATOR 800 CFM FLANGE MOUNTED, 150 PSI (10.3 BAR), (2) 2" x (2) 1-1/2" (PAINTED), PIRATE BRAND
	999-8400-24217PB	MANIFOLD, FLANGE MOUNTED, (4) 1-1/2" OUTLETS, (1) 3" INLET, 150 PSI (10.3 BAR)
3	888-7000-00407PB	MANWAY CRAB ASSY 12" x 16" (INCLUDES GASKET)
	888-7000-00406PB	GASKET, MANWAY, 12" x 16"
4	888-2011-007PB	MUFFLER, BLOWDOWN, 1-1/4" MNPT
5	VB125	BALL VALVE, FULL PORT, 1-1/4" NPT
6	888-3029-10799PB	NIPPLE, TBE, GALV, 1-1/4" x CLOSED
7	888-3006-107PB	ELBOW, STREET, 90˚, GALV, 1-1/4"
8	888-7007-519PB	CLOSURE ASSY, 10" 5-BOLT (INCLUDES GASKET AND CAMLOCKS)
	888-7007-51903PB	CLOSURE O-RING, 10"
	10-706	CLOSURE ASSY, 16" 7-BOLT, 5/8" (INCLUDES GASKET AND CAMLOCKS)
	10-726	CLOSURE O-RING, 16"
9	888-7007-51902PB	CAMLOCK HANDLE ASSY (FOR 10" / 5-BOLT CLOSURES)
	10-707	CAMLOCK HANDLE ASSY (FOR 16" / 7-BOLT CLOSURES)
10	888-3026-10704PB	BUSHING, GALV, 1-1/4" x 1/2"
11	888-3006-104PB	ELBOW, STREET, 90˚, GALV, 1/2"
12	888-3029-10499PB	NIPPLE, TBE, GALV, 1/2" x CLOSED
13	VB050	BALL VALVE, FULL PORT, 1/2" NPT
14*	888-2100-022PB	VALVE, POSI SEAL, DOUBLE SEAL, COMPLETE (SEE "VALVE PARTS LIST" SECTION FOR COMPLETE PARTS BREAKDOWN)
15	200-006	TWINLINE ASSEMBLY, INTERNAL BULK POSI SEAL CONNECTION
16	888-3026-50200PB	BUSHING, PLATED 1/4" x 1/8"NPT
17	888-3031-30000PB	HEX NIPPLE 1/8" NPT x 1/8" W/BALL ST
18	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST
19	888-2011-002PB	MUFFLER, 1/4" MNPT (EXHAUST)
20	888-3006-102PB	ELBOW, STREET, 90˚, GALV, 1/4"
21	888-4203-50202PB	SWIVEL 90˚, 1/4"MNPT x 1/4"F
22	888-4200-30202PB	HOSE, PUSH-ON INSERT 1/4" x 1/4" NPT
23	888-2010-00901PB	GAUGE, PRESSURE, 0 - 160 PSI
24	888-3026-10902PB	BUSHING, GALV, 2" x 1/4"
25	888-3014-107PB	PIPE PLUG, GALV, 1-1/4"
26	888-7003-113PB	4" BLIND FLANGE (COMPLETE ASSEMBLY)
	888-7003-013PB	FLANGE, BLACK, THREADED, 150#, 4"
	888-7003-01301PB	GASKET, FULL FACE, 1/16" THK, 150#, 4", 180-200 DEGREE RATING
	888-7003-01302PB	FLANGE BOLT PACK, 5/8" X 3 BOLTS W/ NUTS (8PK)
	888-7003-01303PB	FLANGE, BLACK, BLIND, 150#, 4"
	888-3029-11399PB	NIPPLE TBE, BLACK, 4" x CLOSED
27	888-3029-11199PB	NIPPLE, TBE, GALV, 3" x CLOSED
28	VB300	BALL VALVE, FULL PORT, 3" NPT
29	GJFS-300	FEMALE SPUD, 3" NPT
30	888-3026-10602PB	BUSHING, GALV, 1" x 1/4"
31	888-3011-11106PB	TEE, GALV, 3" x 3" x 1"
32	888-3026-11109PB	BUSHING, GALV, 3" x 2"
33	888-3029-10999PB	NIPPLE, TBE, GALV, 2" x CLOSED
34	VB200	BALL VALVE, FULL PORT, 2" NPT
35	UF-200	AIR HOSE COUPLINGS, 4 LUG, 2" FEMALE NPT
36	888-3011-10906PB	TEE, GALV, 2" x 2" x 1"
37	888-3031-31202PB	NIPPLE, HEX 1/4"MNPT x 1/4" MNPT
38	VB025	BALL VALVE, FULL PORT, 1/4" NPT
39	888-7003-00801PB	1-1/2" FLANGE GASKET

* See "***Valve Parts Lists***" Section for detailed parts list.

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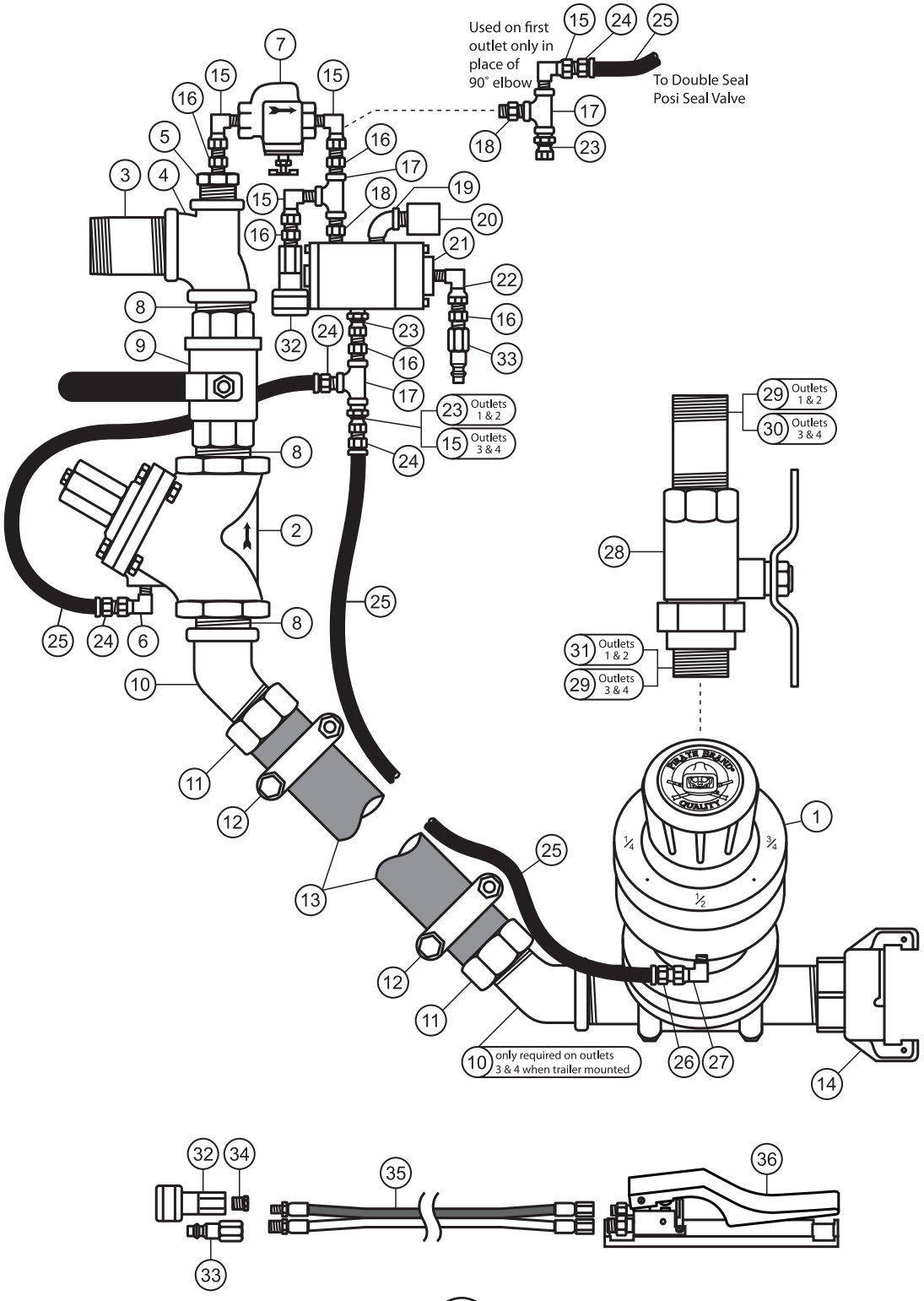
PIPE STRING PARTS LISTS

SPH SERIES - Pneumatic Controls


Used on first outlet only in place of 90° elbow
To Double Seal Posi Seal Valve
Outlets 1 & 2
Outlets 3 & 4
only required on outlets 3 & 4 when trailer mounted

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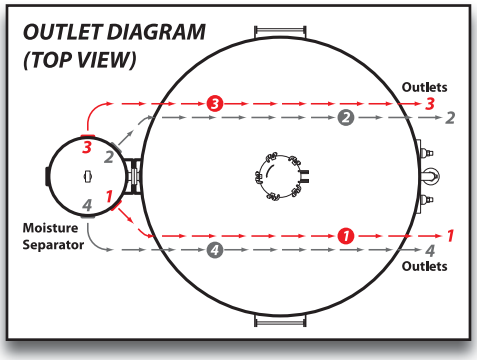
PIPE STRING PARTS LISTS

SPH SERIES - Pneumatic Controls

BIG GUN™ SPH PREMIUM			SPH PREMIUM			SPH BARE BONES		
1*	888-2148-008PB	APV II, 1-1/2" W/SOLID TUNGSTEN CARBIDE SLEEVE				1*	888-2149-108PB	APV, 1-1/2", W/URETHANE SLEEVE
2*	888-2123-108PB-L	VALVE, AUTO AIR, 1-1/2" FULL FLOW, (NORMALLY CLOSED)	2*	888-2123-108PB	VALVE, AUTO AIR, 1-1/2", (NORMALLY CLOSED)			
3	888-3028-10811PB	NIPPLE, TBE, SCHEDULE 80, 1-1/2" x 3"						
4	888-3013-10805PB	TEE, GALV, 90°, 1-1/2" x 3/4" x 1-1/2"						
5	888-3026-10502PB	BUSHING, GALV, 3/4" x 1/4"						
6	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F	6	888-4203-50002PB	SWIVEL 90°, 1/8" MNPT x 1/4" F			
7	888-2301-90290PB	STRAINER, BRZ 1/4" 90 MICRON						
8	888-3029-10899PB	NIPPLE, TBE, GALV, 1-1/2" x CLOSED						
9	VB150	BALL VALVE, FULL PORT, 1-1/2" NPT						
10	888-3008-108PB	ELBOW, STREET, 45°, GALV, 1-1/2"						
11	888-4205-108PB	HOSE, INSERT SWIVEL, 1-1/2", (INCLUDES GASKET)						
	888-4205-10899PB	HOSE, SWIVEL GASKET, 1-1/2"						
12	888-4235-008PB	HOSE, CLAMP, DOUBLE BOLT, 1-1/2"						
13	112-0112	HOSE, AIR, RED, NOMINAL 1-1/2" ID x 2-3/32" OD, WP 250 PSI, PER FOOT						
14	SB-3X-AL	THD QUICK COUPLING, ALUMINUM, 1-1/2", FULL PORT	14	SB-2-IR	THD QUICK COUPLING, IRON, 1-1/2"			
15	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F						
16	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST						
17	888-3011-102PB	TEE, GALV, 1/4"						
18	888-3031-31202PB	NIPPLE, HEX 1/4"MNPT x 1/4" MNPT						
19	888-3006-102PB	ELBOW, STREET, 90°, GALV, 1/4"						
20	888-2013-402PB	DUST ELIMINATOR, 1/4" MNPT						
21	888-2229-000PB	VALVE, CONTROL, PNEUMATIC (NORMALLY CLOSED)						
	888-2229-00099PB	VALVE, CONTROL, PNEUMATIC, REPAIR KIT, HEAVY DUTY						
22	888-4203-50002PB	SWIVEL 90°, 1/8" MNPT x 1/4" F						
23	888-4201-50202PB	STRAIGHT SWIVEL, 1/4"MNPT x 1/4"F						
24	888-4200-30202PB	HOSE, PUSH-ON INSERT 1/4" x 1/4" NPT						
25	888-4101-002PB	HOSE, PUSH-ON, 1/4"						
26	888-4200-30200PB	HOSE, PUSH-ON INSERT 1/4" x 1/8" NPT						
27	888-4203-50000PB	SWIVEL 90°, 1/8"MNPT X 1/8"F						
28	888-2408-907PB	BALL VALVE, UNION END, 1-1/4"				28	VB125	BALL VALVE, FULL PORT, 1-1/4" NPT
29	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED				29	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"
30	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"						
31	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED						
32	888-4224-30102PB	BRASS SOCKET, 1/4"						
33	888-4224-30002PB	PLUG, 1/4"						
34	888-3026-50200PB	BUSHING, PLATED 1/4" x 1/8"NPT						
35	200-110	HOSE, TWINLINE CONTROL, ASSEMBLY, YEL/YEL W/BLACK STRIP, NOMINAL 3/16" ID x 110'						
	200-055	HOSE, TWINLINE CONTROL, ASSEMBLY, YEL/YEL W/BLACK STRIP, NOMINAL 3/16" ID x 55'						
36**	888-2263-001PB	HANDLE, CONTROL, PNEUMATIC #2						
	888-2263-000PB	HANDLE, CONTROL, PNEUMATIC						

* See "***Valve Parts Lists***" Section for detailed parts list.
** See "***Control Handle Parts Lists***" Section for detailed parts list.



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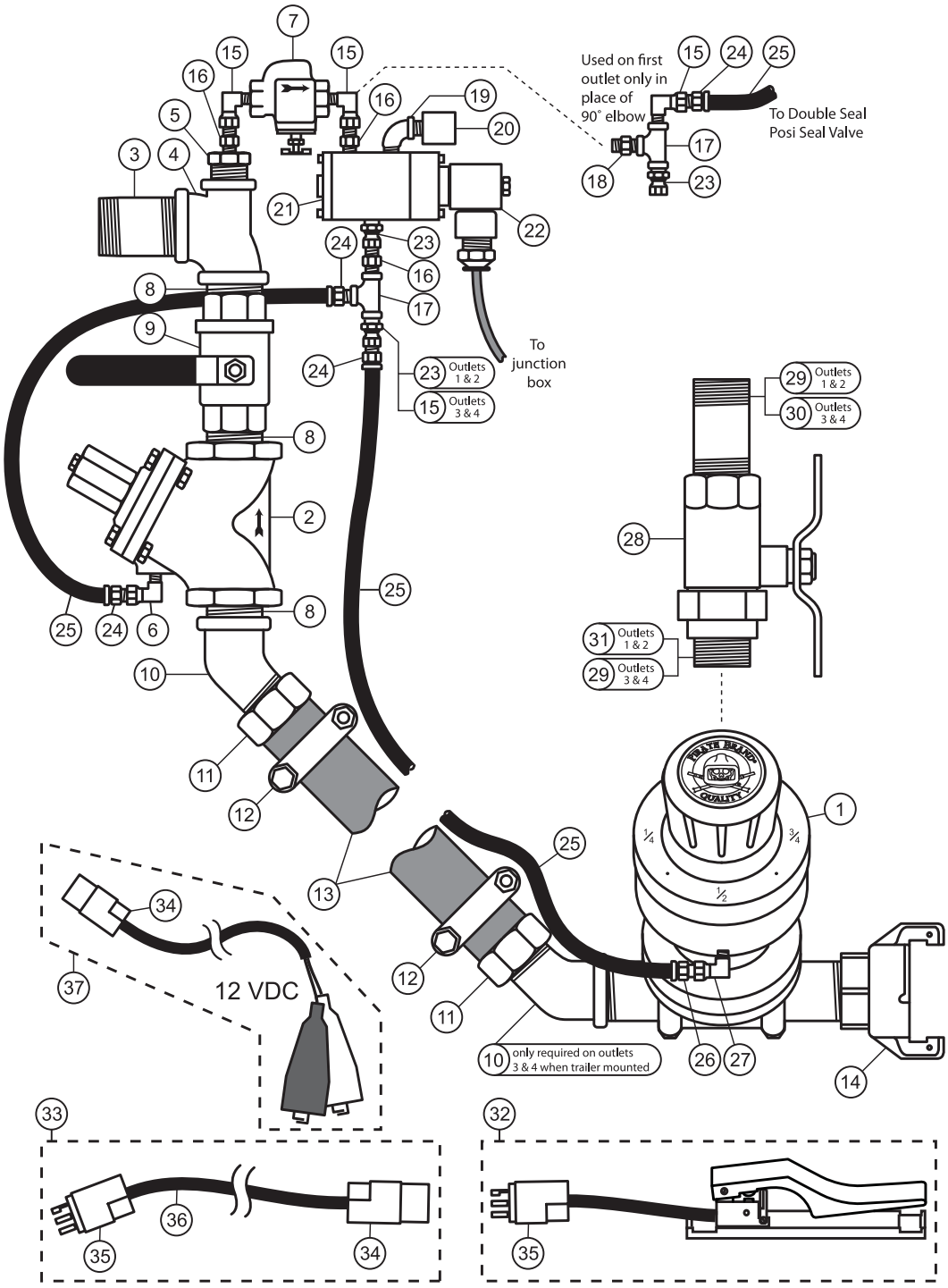
PIPE STRING PARTS LISTS

SPH SERIES - Electric Controls


Used on first outlet only in place of 90° elbow
To Double Seal Posi Seal Valve
To junction box
Outlets 1 & 2
Outlets 3 & 4
12 VDC
only required on outlets 3 & 4 when trailer mounted

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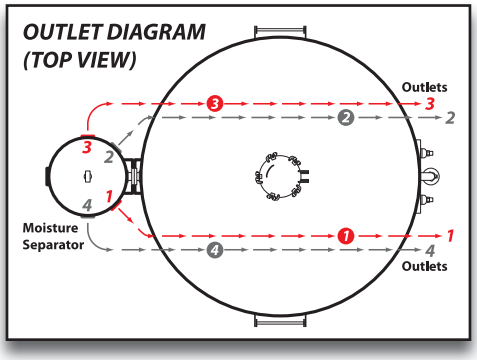
PIPE STRING PARTS LISTS

SPH SERIES - Electric Controls

BIG GUN™ SPH PREMIUM			SPH PREMIUM			SPH BARE BONES		
1*	888-2148-008PB	APV II, 1-1/2" W/SOLID TUNGSTEN CARBIDE SLEEVE				1*	888-2149-108PB	APV, 1-1/2", W/URETHANE SLEEVE
2*	888-2123-108PB-L	VALVE, AUTO AIR, 1-1/2" FULL FLOW, (NORMALLY CLOSED)	2*	888-2123-108PB	VALVE, AUTO AIR, 1-1/2", (NORMALLY CLOSED)			
3	888-3028-10811PB	NIPPLE, TBE, SCHEDULE 80, 1-1/2" x 3"						
4	888-3013-10805PB	TEE, GALV, 90°, 1-1/2" x 3/4" x 1-1/2"						
5	888-3026-10502PB	BUSHING, GALV, 3/4" x 1/4"						
6	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F	6	888-4203-50002PB	SWIVEL 90°, 1/8" MNPT x 1/4" F			
7	888-2301-90290PB	STRAINER, BRZ 1/4" 90 MICRON						
8	888-3029-10899PB	NIPPLE, TBE, GALV, 1-1/2" x CLOSED						
9	VB150	BALL VALVE, FULL PORT, 1-1/2" NPT						
10	888-3008-108PB	ELBOW, STREET, 45°, GALV, 1-1/2"						
11	888-4205-108PB	HOSE, INSERT SWIVEL, 1-1/2", (INCLUDES GASKET)						
	888-4205-10899PB	HOSE, SWIVEL GASKET, 1-1/2"						
12	888-4235-008PB	HOSE, CLAMP, DOUBLE BOLT, 1-1/2"						
13	112-0112	HOSE, AIR, RED, NOMINAL 1-1/2" ID x 2-3/32" OD, WP 250 PSI, PER FOOT						
14	SB-3X-AL	THD QUICK COUPLING, ALUMINUM, 1-1/2", FULL PORT	14	SB-2-IR	THD QUICK COUPLING, IRON, 1-1/2"			
15	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F						
16	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST						
17	888-3011-102PB	TEE, GALV, 1/4"						
18	888-3031-31202PB	NIPPLE, HEX 1/4"MNPT x 1/4" MNPT						
19	888-3006-102PB	ELBOW, STREET, 90°, GALV, 1/4"						
20	888-2013-402PB	DUST ELIMINATOR, 1/4" MNPT						
21	888-2229-100PB	VALVE, CONTROL, ELECTRIC, 12VDC (NORMALLY CLOSED) (INCLUDES COIL)						
	888-2229-10099PB	VALVE, CONTROL, REPAIR KIT, ELECTRIC, HEAVY DUTY						
22	888-2229-10003PB	VALVE, CONTROL, COIL, 12VDC						
	888-7112-200PB	JUNCTION BOX ASSEMBLY 12VDC BULK BLASTER (2) OUTLET						
	888-7112-300PB	JUNCTION BOX ASSEMBLY 12VDC BULK BLASTER (3) OUTLET						
	888-7112-400PB	JUNCTION BOX ASSEMBLY 12VDC BULK BLASTER (4) OUTLET						
23	888-4201-50202PB	STRAIGHT SWIVEL, 1/4"MNPT x 1/4"F						
24	888-4200-30202PB	HOSE, PUSH-ON INSERT 1/4" x 1/4" NPT						
25	888-4101-002PB	HOSE, PUSH-ON, 1/4"						
26	888-4200-30200PB	HOSE, PUSH-ON INSERT 1/4" x 1/8" NPT						
27	888-4203-50000PB	SWIVEL 90°, 1/8"MNPT X 1/8"F						
28	888-2408-907PB	BALL VALVE, UNION END, 1-1/4"				28	VB125	BALL VALVE, FULL PORT, 1-1/4" NPT
29	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED				29	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"
30	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"						
31	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED						
32**	888-2263-40101PB	HANDLE, CONTROL, ELECTRIC #2 W/PLUG						
	888-2263-40001PB	HANDLE, CONTROL, ELECTRIC W/PLUG						
33	888-7073-110PB	EXTN CORD W/CONNECTOR, 110', 3 PRONG, 2 WIRE						
	888-7073-055PB	EXTN CORD W/CONNECTOR, 55', 3 PRONG, 2 WIRE						
34	888-7109-300PB	ELECTRIC CONNECTOR, FEMALE, TWIST-LOCK, 3 PRONG						
35	888-7109-301PB	ELECTRIC CONNECTOR, MALE, TWIST-LOCK, 3 PRONG						
36	10-203	CONTROL CORD, 16.2, 2 WIRE (PER FT)						
37	888-7072-012PB	POWER CORD, 25' 12VDC, 3-LUG						

* See "***Valve Parts Lists***" Section for detailed parts list.
** See "***Control Handle Parts Lists***" Section for detailed parts list.



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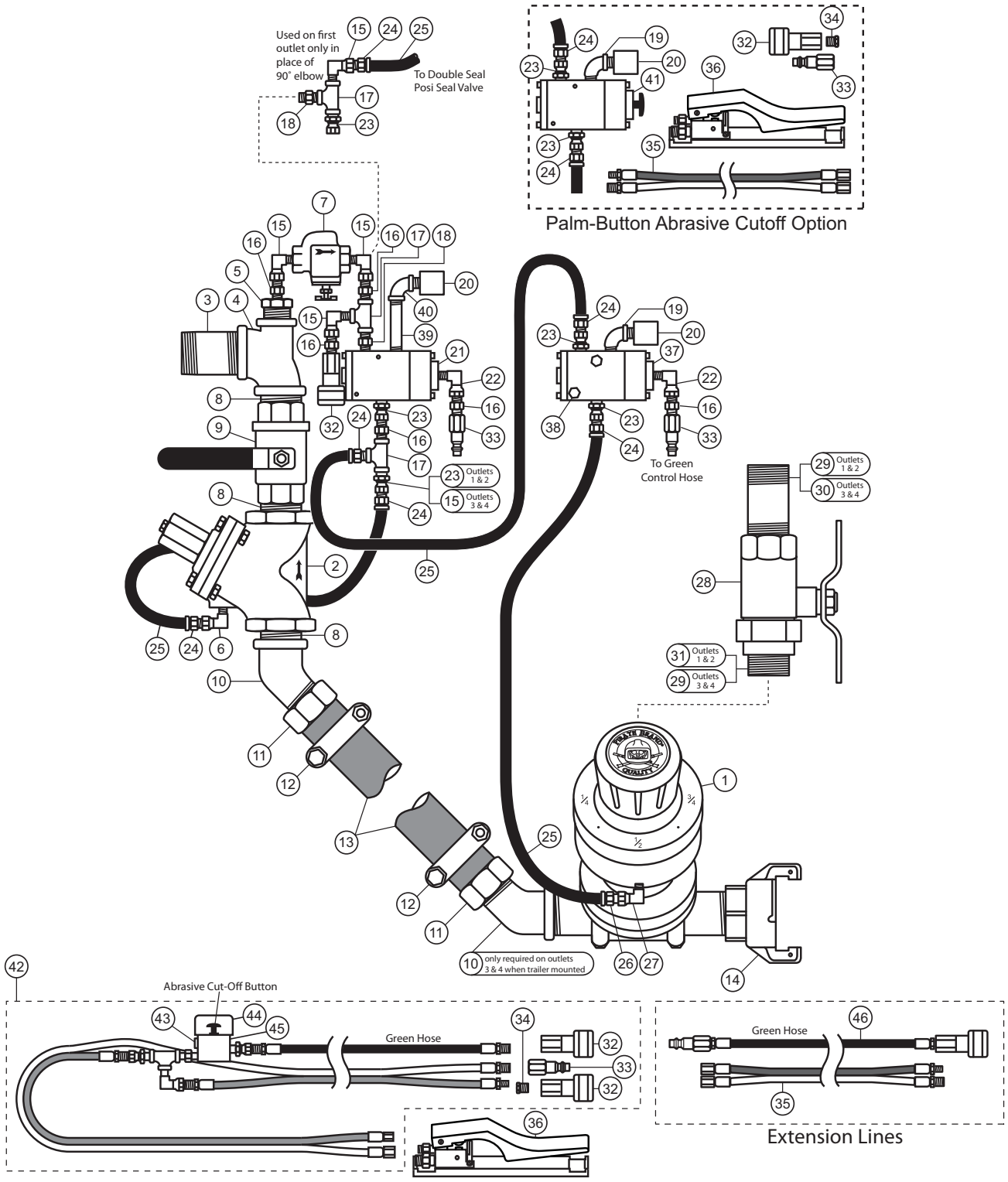
PIPE STRING PARTS LISTS

SPH SERIES - Pneumatic Abrasive Cut-off


Used on first outlet only in place of 90° elbow
To Double Seal Posi Seal Valve
Palm-Button Abrasive Cutoff Option
To Green Control Hose
Outlets 1 & 2
Outlets 3 & 4
only required on outlets 3 & 4 when trailer mounted
Abrasive Cut-Off Button
Green Hose
Green Hose
Extension Lines

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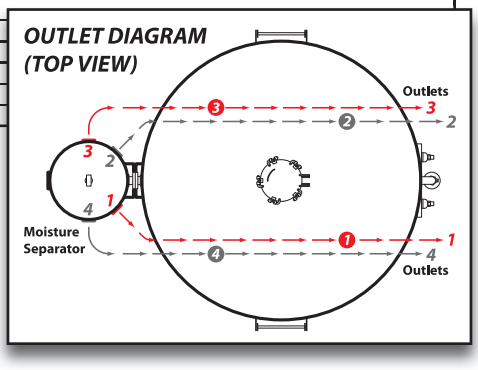
PIPE STRING PARTS LISTS

SPH SERIES - Pneumatic Abrasive Cut-off

BIG GUN™ SPH PREMIUM			SPH PREMIUM			SPH BARE BONES		
1*	888-2148-008PB	APV II, 1-1/2" W/SOLID TUNGSTEN CARBIDE SLEEVE				1*	888-2149-108PB	APV, 1-1/2", W/URETHANE SLEEVE
2*	888-2123-108PB-L	VALVE, AUTO AIR, 1-1/2" FULL FLOW, (NORMALLY CLOSED)	2*	888-2123-108PB	VALVE, AUTO AIR, 1-1/2", (NORMALLY CLOSED)			
3	888-3028-10811PB	NIPPLE, TBE, SCHEDULE 80, 1-1/2" x 3"						
4	888-3013-10805PB	TEE, GALV, 90°, 1-1/2" x 3/4" x 1-1/2"						
5	888-3026-10502PB	BUSHING, GALV, 3/4" x 1/4"						
6	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F	6	888-4203-50002PB	SWIVEL 90°, 1/8" MNPT x 1/4" F			
7	888-2301-90290PB	STRAINER, BRZ 1/4" 90 MICRON						
8	888-3029-10899PB	NIPPLE, TBE, GALV, 1-1/2" x CLOSED						
9	VB150	BALL VALVE, FULL PORT, 1-1/2" NPT						
10	888-3008-108PB	ELBOW, STREET, 45°, GALV, 1-1/2"						
11	888-4205-108PB	HOSE, INSERT SWIVEL, 1-1/2", (INCLUDES GASKET)						
	888-4205-10899PB	HOSE, SWIVEL GASKET, 1-1/2"						
12	888-4235-008PB	HOSE, CLAMP, DOUBLE BOLT, 1-1/2"						
13	112-0112	HOSE, AIR, RED, NOMINAL 1-1/2" ID x 2-3/32" OD, WP 250 PSI, PER FOOT						
14	SB-3X-AL	THD QUICK COUPLING, ALUMINUM, 1-1/2", FULL PORT	14	SB-2-IR	THD QUICK COUPLING, IRON, 1-1/2"			
15	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F						
16	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST						
17	888-3011-102PB	TEE, GALV, 1/4"						
18	888-3031-31202PB	NIPPLE, HEX 1/4"MNPT x 1/4" MNPT						
19	888-3006-102PB	ELBOW, STREET, 90°, GALV, 1/4"						
20	888-2013-402PB	DUST ELIMINATOR, 1/4" MNPT						
21	888-2229-000PB	VALVE, CONTROL, PNEUMATIC (NORMALLY CLOSED)						
	888-2229-00099PB	VALVE, CONTROL, PNEUMATIC, REPAIR KIT, HEAVY DUTY						
22	888-4203-50002PB	SWIVEL 90°, 1/8" MNPT x 1/4" F						
23	888-4201-50202PB	STRAIGHT SWIVEL, 1/4"MNPT x 1/4"F						
24	888-4200-30202PB	HOSE, PUSH-ON INSERT 1/4" x 1/4" NPT						
25	888-4101-002PB	HOSE, PUSH-ON, 1/4"						
26	888-4200-30200PB	HOSE, PUSH-ON INSERT 1/4" x 1/8" NPT						
27	888-4203-50000PB	SWIVEL 90°, 1/8"MNPT X 1/8"F						
28	888-2408-907PB	BALL VALVE, UNION END, 1-1/4"				28	VB125	BALL VALVE, FULL PORT, 1-1/4" NPT
29	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED				29	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"
30	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"						
31	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED						
32	888-4224-30102PB	BRASS SOCKET, 1/4"						
33	888-4224-30002PB	PLUG, 1/4"						
34	888-3026-50200PB	BUSHING, PLATED 1/4" x 1/8"NPT						
35	200-110	HOSE, TWINLINE CONTROL, ASSEMBLY, YEL/YEL W/BLACK STRIP, NOMINAL 3/16" ID x 110'						
	200-055	HOSE, TWINLINE CONTROL, ASSEMBLY, YEL/YEL W/BLACK STRIP, NOMINAL 3/16" ID x 55'						
36**	888-2263-001PB	HANDLE, CONTROL, PNEUMATIC #2						
	888-2263-000PB	HANDLE, CONTROL, PNEUMATIC						
37	888-2229-010PB	VALVE, CONTROL, PNEUMATIC (NORMALLY OPEN)						
	888-2229-00099PB	VALVE, CONTROL, PNEUMATIC, REPAIR KIT, HEAVY DUTY						
38	105-1420-212	BOLT, 1/4" x 2-1/2"						
	552-752	LOCK WASHER, 1/4"						
	1136102	HEX NUT, 1/4"						
39	888-3029-10211PB	NIPPLE, TBE, GALV, 1/4" x 3"						
40	888-3000-102PB	ELBOW, GALV, 90°, 1/4"						
41	888-2229-301PB	VALVE, CONTROL, KNOB OPERATED 3W2P						
	888-2229-30199PB	VALVE, CONTROL, KNOB OPERATED 3W2P, REPAIR KIT, HEAVY DUTY						
42	888-4100-70102PB	HOSE, TWINLINE ASSY 110' ACO W/ABRASIVE CUTOFF SWITCH						
43	888-2014-300PB	VENT, 1/8						
44	888-2025-10001PB	TOGGLE SWITCH GUARD						
45	888-2025-010PB	VALVE, ABRASIVE CUTOFF (PNEU)						
46	888-4100-70103PB	HOSE, GREEN ACO ASSEMBLY 110' EXTENSION W/QC						
	888-4100-50103PB	HOSE, GREEN ACO ASSEMBLY, 55' EXTENSION W/QC						



* See "***Valve Parts Lists***" Section for detailed parts list.

** See "***Control Handle Parts Lists***" Section for detailed parts list.

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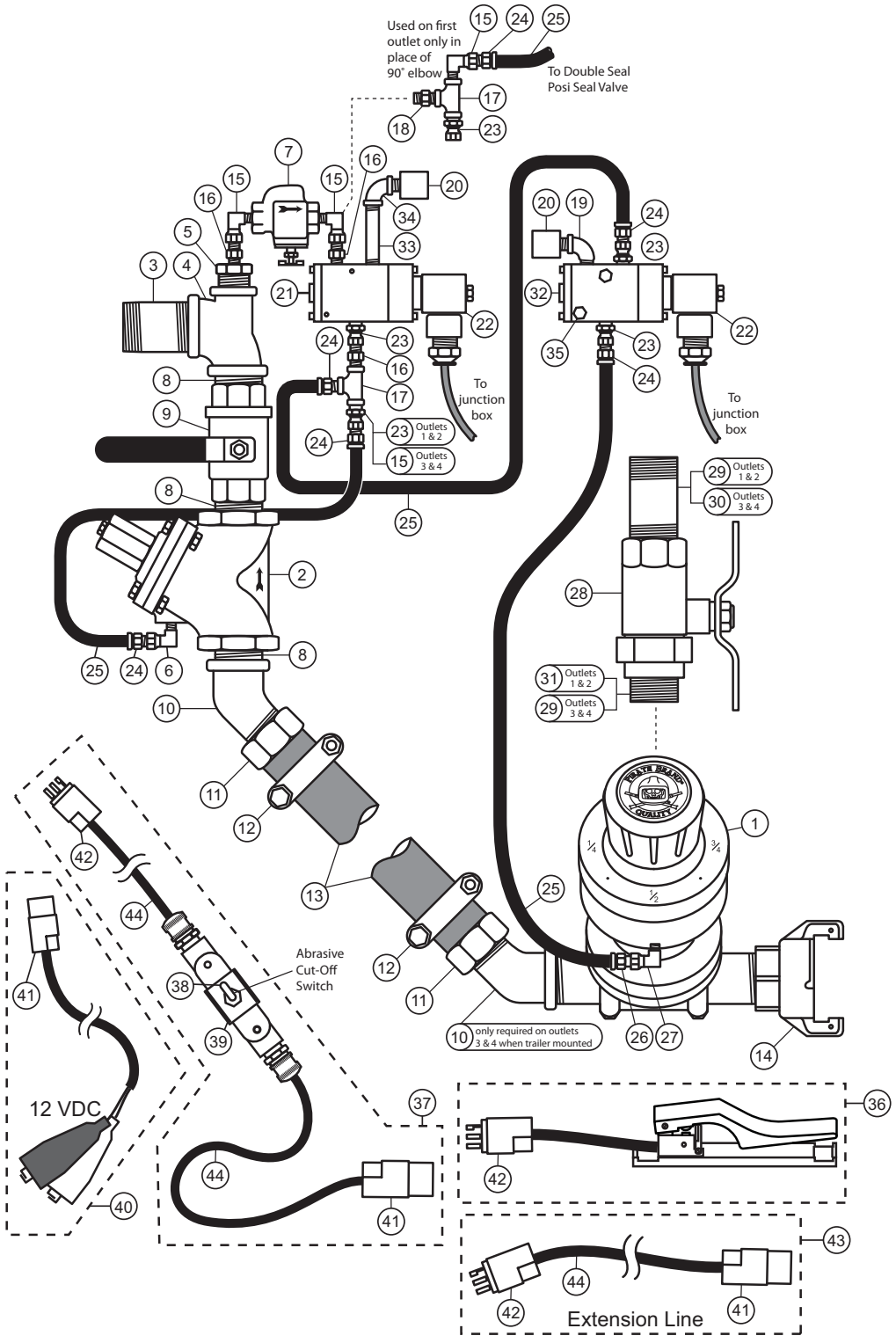
PIPE STRING PARTS LISTS

SPH SERIES - Electric Abrasive Cut-off


Used on first outlet only in place of 90° elbow
To Double Seal Posi Seal Valve
To junction box
To junction box
Outlets 1 & 2
Outlets 3 & 4
Outlets 1 & 2
Outlets 3 & 4
Outlets 1 & 2
Outlets 3 & 4
Abrasive Cut-Off Switch
12 VDC
only required on outlets 3 & 4 when trailer mounted
Extension Line

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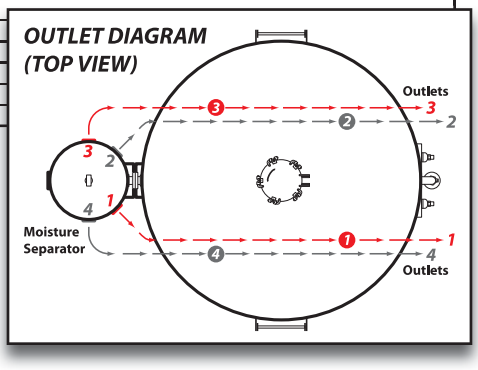
PIPE STRING PARTS LISTS

SPH SERIES - Electric Abrasive Cut-off

BIG GUN™ SPH PREMIUM			SPH PREMIUM			SPH BARE BONES		
1*	888-2148-008PB	APV II, 1-1/2" W/SOLID TUNGSTEN CARBIDE SLEEVE				1*	888-2149-108PB	APV, 1-1/2", W/URETHANE SLEEVE
2*	888-2123-108PB-L	VALVE, AUTO AIR, 1-1/2" FULL FLOW, (NORMALLY CLOSED)	2*	888-2123-108PB	VALVE, AUTO AIR, 1-1/2", (NORMALLY CLOSED)			
3	888-3028-10811PB	NIPPLE, TBE, SCHEDULE 80, 1-1/2" x 3"						
4	888-3013-10805PB	TEE, GALV, 90°, 1-1/2" x 3/4" x 1-1/2"						
5	888-3026-10502PB	BUSHING, GALV, 3/4" x 1/4"						
6	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F	6	888-4203-50002PB	SWIVEL 90°, 1/8" MNPT x 1/4" F			
7	888-2301-90290PB	STRAINER, BRZ 1/4" 90 MICRON						
8	888-3029-10899PB	NIPPLE, TBE, GALV, 1-1/2" x CLOSED						
9	VB150	BALL VALVE, FULL PORT, 1-1/2" NPT						
10	888-3008-108PB	ELBOW, STREET, 45°, GALV, 1-1/2"						
11	888-4205-108PB	HOSE, INSERT SWIVEL, 1-1/2", (INCLUDES GASKET)						
	888-4205-10899PB	HOSE, SWIVEL GASKET, 1-1/2"						
12	888-4235-008PB	HOSE, CLAMP, DOUBLE BOLT, 1-1/2"						
13	112-0112	HOSE, AIR, RED, NOMINAL 1-1/2" ID x 2-3/32" OD, WP 250 PSI, PER FOOT						
14	SB-3X-AL	THD QUICK COUPLING, ALUMINUM, 1-1/2", FULL PORT	14	SB-2-IR	THD QUICK COUPLING, IRON, 1-1/2"			
15	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F						
16	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST						
17	888-3011-102PB	TEE, GALV, 1/4"						
18	888-3031-31202PB	NIPPLE, HEX 1/4"MNPT x 1/4" MNPT						
19	888-3006-102PB	ELBOW, STREET, 90°, GALV, 1/4"						
20	888-2013-402PB	DUST ELIMINATOR, 1/4" MNPT						
21	888-2229-100PB	VALVE, CONTROL, ELECTRIC, 12VDC (NORMALLY CLOSED) (INCLUDES COIL)						
	888-2229-10099PB	VALVE, CONTROL, REPAIR KIT, ELECTRIC, HEAVY DUTY						
22	888-2229-10003PB	VALVE, CONTROL, COIL, 12VDC						
	888-2035-132PB	JUNCTION BOX ABRASIVE CUTOFF ASSEMBLY, 12VDC ELECTRIC, BULK BLASTER (2) OUTLET						
	888-2035-133PB	JUNCTION BOX ABRASIVE CUTOFF ASSEMBLY, 12VDC ELECTRIC, BULK BLASTER (3) OUTLET						
	888-2035-134PB	JUNCTION BOX ABRASIVE CUTOFF ASSEMBLY, 12VDC ELECTRIC, BULK BLASTER (3) OUTLET						
23	888-4201-50202PB	STRAIGHT SWIVEL, 1/4"MNPT x 1/4"F						
24	888-4200-30202PB	HOSE, PUSH-ON INSERT 1/4" x 1/4" NPT						
25	888-4101-002PB	HOSE, PUSH-ON, 1/4"						
26	888-4200-30200PB	HOSE, PUSH-ON INSERT 1/4" x 1/8" NPT						
27	888-4203-50000PB	SWIVEL 90°, 1/8"MNPT X 1/8"F						
28	888-2408-907PB	BALL VALVE, UNION END, 1-1/4"				28	VB125	BALL VALVE, FULL PORT, 1-1/4" NPT
29	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED				29	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"
30	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"						
31	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED						
32	888-2229-600PB	VALVE, CONTROL, ELECTRIC, 12VDC (NORMALLY OPEN) (INCLUDES COIL)						
	888-2229-10099PB	VALVE, CONTROL, REPAIR KIT, ELECTRIC, HEAVY DUTY						
33	888-3029-10211PB	NIPPLE, TBE, GALV, 1/4" x 3"						
34	888-3000-102PB	ELBOW, GALV, 90°, 1/4"						
35	105-1420-212	BOLT, 1/4" x 2-1/2"						
	552-752	LOCK WASHER, 1/4"						
	1133004	FLAT WASHER, 1/4"						
	1136102	HEX NUT, 1/4"						
36**	888-2263-40101PB	HANDLE, CONTROL, ELECTRIC #2 W/PLUG						
	888-2263-40001PB	HANDLE, CONTROL, ELECTRIC W/PLUG						
37	888-7075-110PB	CORD W/CONNECTORS & ABRASIVE CUTOFF SWITCH ASSEMBLY, 110', 3-PRONG, 3-WIRE						
38	888-2025-10002PB	ABRA CUTOFF SWITCH (ELEC)						
39	888-2025-10001PB	TOGGLE SWITCH GUARD						
40	888-7072-012PB	POWER CORD, 25' 12VDC, 3-LUG						
41	888-7109-300PB	ELECTRIC CONNECTOR, FEMALE, TWIST-LOCK, 3 PRONG						
42	888-7109-301PB	ELECTRIC CONNECTOR, MALE, TWIST-LOCK, 3 PRONG						
43	888-7074-110PB	EXTN CORD W/CONNECTOR, 110', 3 PRONG, 3 WIRE						
	888-7074-055PB	EXTN CORD W/CONNECTOR, 55', 3 PRONG, 3 WIRE						
44	888-7106-163PB	CONTROL CORD, 16.3, 3 WIRE (PER FT)						

* See "***Valve Parts Lists***" Section for detailed parts list.
** See "***Control Handle Parts Lists***" Section for detailed parts list.



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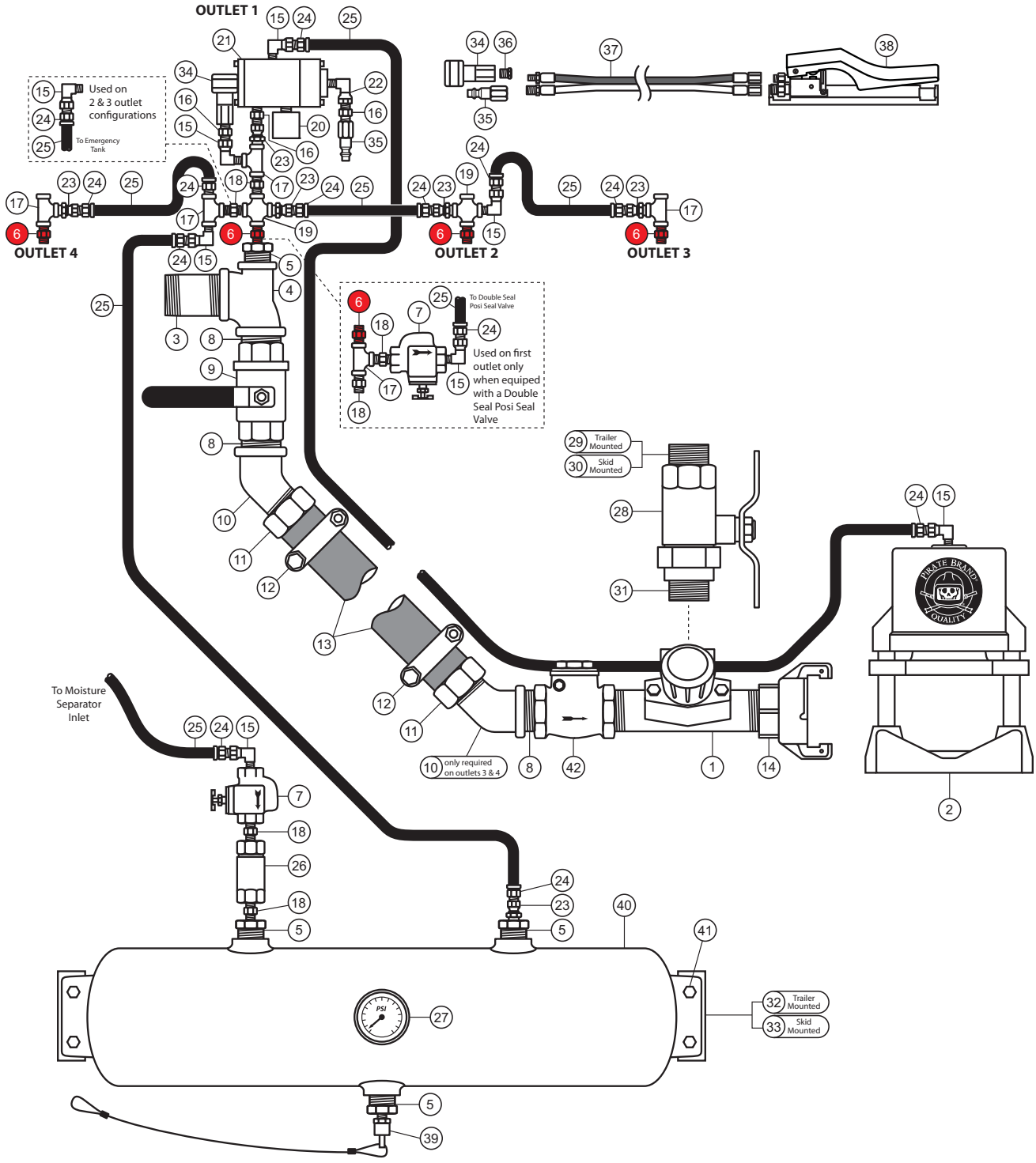
PIPE STRING PARTS LISTS

SPH PINCH SERIES - Pneumatic Controls


OUTLET 1
OUTLET 2
OUTLET 3
OUTLET 4
Used on 2 & 3 outlet configurations
To Emergency Tank
To Double Seal Posi Seal Valve
Used on first outlet only when equiped with a Double Seal Posi Seal Valve
Trailer Mounted
Skid Mounted
only required on outlets 3 & 4
To Moisture Separator Inlet
PSI

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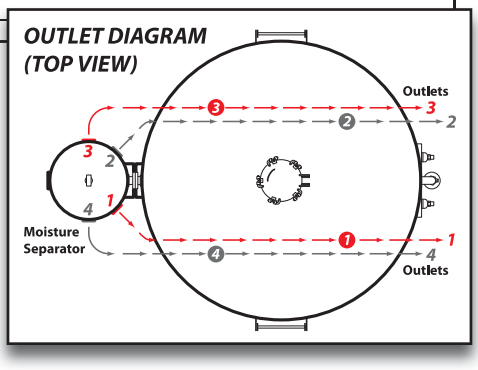
PIPE STRING PARTS LISTS

SPH PINCH SERIES - Pneumatic Controls

BIG GUN™ SPH PREMIUM		SPH PREMIUM		SPH BARE BONES	
1*	888-2125-108PB	VALVE, MANUAL PLUNGER, 1-1/2", W/URETHANE SLEEVE			
	1MV-C10	VALVE, #100 METERING, COMPLETE, 1-1/2" NPT INLET (**CUSTOM APPLICATIONS ONLY**)			
2*	1PV-C10	VALVE, #400 PINCH, COMPLETE			
3	888-3028-10811PB	NIPPLE, TBE, SCHEDULE 80, 1-1/2" x 3"			
4	888-3013-10805PB	TEE, GALV, 90°, 1-1/2" x 3/4" x 1-1/2"			
5	888-3026-10502PB	BUSHING, GALV, 3/4" x 1/4"			
6	888-3031-32202PB	SOLID BRASS MOUNT, 1/4" x 1/4"			
7	888-2301-90290PB	STRAINER, BRZ 1/4" 90 MICRON			
8	888-3029-10899PB	NIPPLE, TBE, GALV, 1-1/2" x CLOSED			
9	VB150	BALL VALVE, FULL PORT, 1-1/2" NPT			
10	888-3008-108PB	ELBOW, STREET, 45°, GALV, 1-1/2"			
11	888-4205-108PB	HOSE, INSERT SWIVEL, 1-1/2", (INCLUDES GASKET)			
	888-4205-10899PB	HOSE, SWIVEL GASKET, 1-1/2"			
12	888-4235-008PB	HOSE, CLAMP, DOUBLE BOLT, 1-1/2"			
13	112-0112	HOSE, AIR, RED, NOMINAL 1-1/2" ID x 2-3/32" OD, WP 250 PSI, PER FOOT			
14	SB-3X-AL	THD QUICK COUPLING, ALUMINUM, 1-1/2", FULL PORT (WHEN USING MPV METERING VALVES)	14	SB-2-IR	THD QUICK COUPLING, IRON, 1-1/2" (WHEN USING MPV METERING VALVES)
	SB-4X-AL	THD QUICK COUPLING, ALUMINUM, 2", FULL PORT (WHEN USING #100 METERING VALVES)		1MV-70	THRD CPLG, STD NPS, ALUMINUM, 2", (WHEN USING #100 METERING VALVES)
15	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F			
16	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST			
17	888-3011-102PB	TEE, GALV, 1/4"			
18	888-3031-31202PB	NIPPLE, HEX 1/4"MNPT x 1/4" MNPT			
19	888-3016-102PB	CROSS, 1/4"			
20	888-2013-402PB	DUST ELIMINATOR, 1/4" MNPT			
21	888-2229-010PB	VALVE, CONTROL, PNEUMATIC (NORMALLY OPEN)			
	888-2229-00099PB	VALVE, CONTROL, PNEUMATIC, REPAIR KIT, HEAVY DUTY			
22	888-4203-50002PB	SWIVEL 90°, 1/8" MNPT x 1/4" F			
23	888-4201-50202PB	STRAIGHT SWIVEL, 1/4"MNPT x 1/4"F			
24	888-4200-30202PB	HOSE, PUSH-ON INSERT 1/4" x 1/4" NPT			
25	888-4101-002PB	HOSE, PUSH-ON, 1/4"			
26	888-2492-302PB	VALVE, 1/4", BALL CHECK			
27	888-2010-010PB	PRESS GAUGE, 0-160 PSI BACK MNT			
28	888-2408-907PB	BALL VALVE, UNION END, 1-1/4"	28	VB125	BALL VALVE, FULL PORT, 1-1/4" NPT
29	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED	29	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"
30	888-3028-10716PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 6"			
31	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED			
32	BRKT-ART-TRLR	EMERGENCY TANK MOUNTING BRACKET, TRAILER			
33	BRKT-ART-SKID	EMERGENCY TANK MOUNTING BRACKET, SKID			
34	888-4224-30102PB	BRASS SOCKET, 1/4"			
35	888-4224-30002PB	PLUG, 1/4"			
36	888-3026-50200PB	BUSHING, PLATED 1/4" x 1/8"NPT			
37	200-110	HOSE, TWINLINE CONTROL, ASSEMBLY, YEL/YEL W/BLACK STRIP, NOMINAL 3/16" ID x 110'			
	200-055	HOSE, TWINLINE CONTROL, ASSEMBLY, YEL/YEL W/BLACK STRIP, NOMINAL 3/16" ID x 55'			
38**	888-2263-001PB	HANDLE, CONTROL, PNEUMATIC #2			
39	PB-03352	PULL CORD DRAIN VALVE			
40	11-221	EMERGENCY AIR TANK			
41	105-3816-1	BOLT, 3/8" x 1"			
	36106	NUT, 3/8"			
	33008	FLAT WASHER, 3/8"			
	1133622	LOCK WASHER, 3/8"			
42	VC-150	CHECK VALVE, SWING 1-1/2"			

* See "***Valve Parts Lists***" Section for detailed parts list.
** See "***Control Handle Parts Lists***" Section for detailed parts list.



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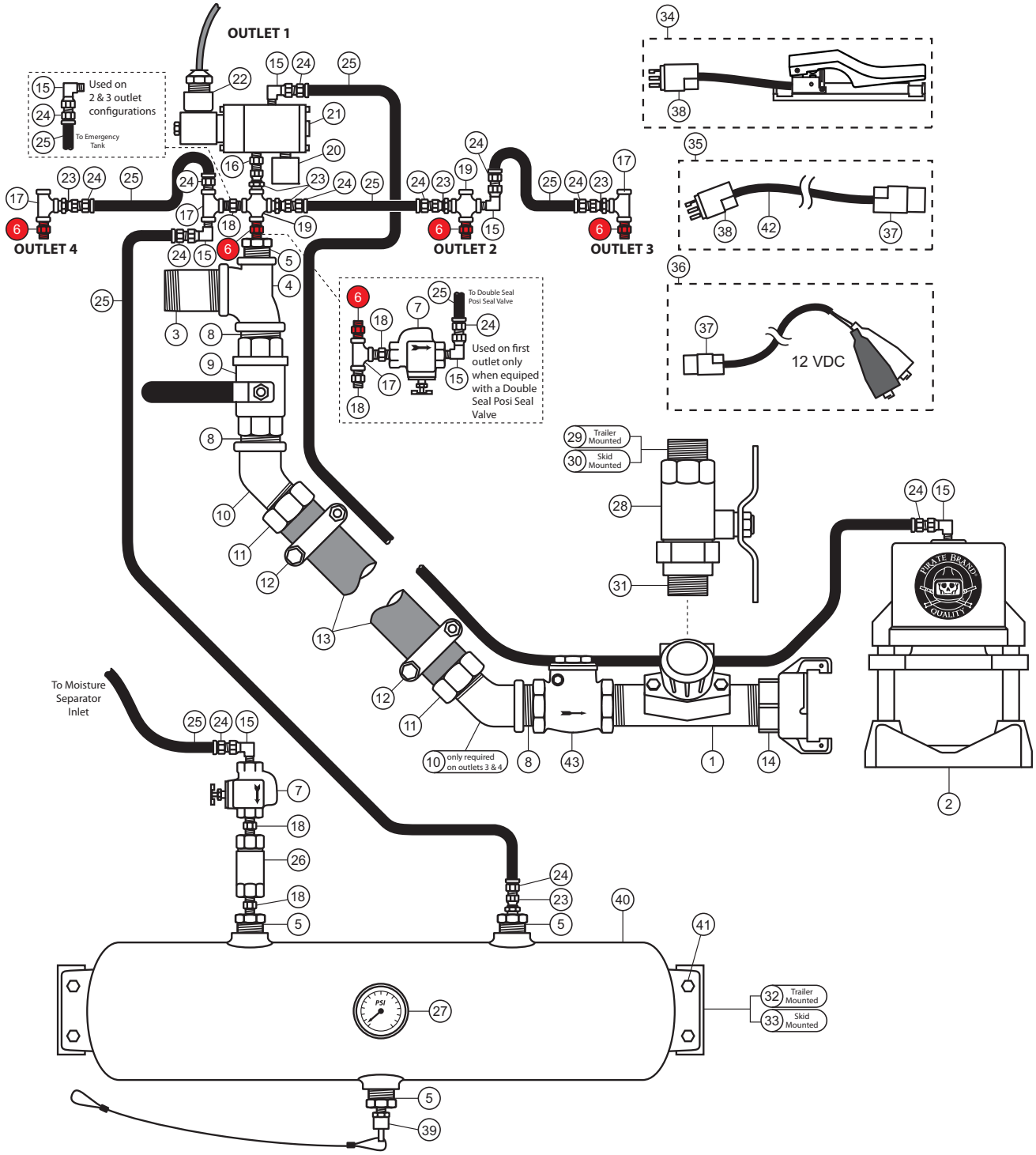
PIPE STRING PARTS LISTS

SPH PINCH SERIES - Electric Controls


OUTLET 1
OUTLET 2
OUTLET 3
OUTLET 4
Used on 2 & 3 outlet configurations
To Emergency Tank
To Double Seal Posi Seal Valve
Used on first outlet only when equiped with a Double Seal Posi Seal Valve
12 VDC
Trailer Mounted
Skid Mounted
To Moisture Separator Inlet
only required on outlets 3 & 4
PSI

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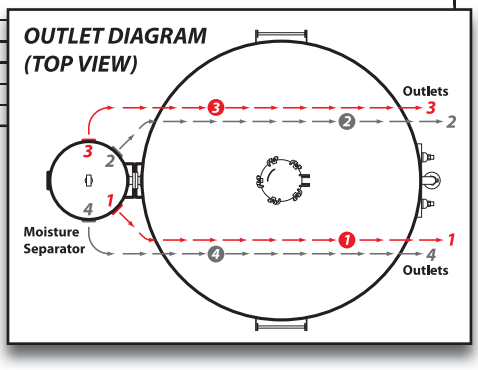
PIPE STRING PARTS LISTS

SPH PINCH SERIES - Electric Controls

BIG GUN™ SPH PREMIUM		SPH PREMIUM		SPH BARE BONES	
1*	888-2125-108PB	VALVE, MANUAL PLUNGER, 1-1/2", W/URETHANE SLEEVE			
	1MV-C10	VALVE, #100 METERING, COMPLETE, 1-1/2" NPT INLET (**CUSTOM APPLICATIONS ONLY**)			
2*	1PV-C10	VALVE, #400 PINCH, COMPLETE			
3	888-3028-10811PB	NIPPLE, TBE, SCHEDULE 80, 1-1/2" x 3"			
4	888-3013-10805PB	TEE, GALV, 90°, 1-1/2" x 3/4" x 1-1/2"			
5	888-3026-10502PB	BUSHING, GALV, 3/4" x 1/4"			
6	888-3031-32202PB	SOLID BRASS MOUNT, 1/4" x 1/4"			
7	888-2301-90290PB	STRAINER, BRZ 1/4" 90 MICRON			
8	888-3029-10899PB	NIPPLE, TBE, GALV, 1-1/2" x CLOSED			
9	VB150	BALL VALVE, FULL PORT, 1-1/2" NPT			
10	888-3008-108PB	ELBOW, STREET, 45°, GALV, 1-1/2"			
11	888-4205-108PB	HOSE, INSERT SWIVEL, 1-1/2", (INCLUDES GASKET)			
	888-4205-10899PB	HOSE, SWIVEL GASKET, 1-1/2"			
12	888-4235-008PB	HOSE, CLAMP, DOUBLE BOLT, 1-1/2"			
13	112-0112	HOSE, AIR, RED, NOMINAL 1-1/2" ID x 2-3/32" OD, WP 250 PSI, PER FOOT			
14	SB-3X-AL	THD QUICK COUPLING, ALUMINUM, 1-1/2", FULL PORT (WHEN USING MPV METERING VALVES)	14	SB-2-IR	THD QUICK COUPLING, IRON, 1-1/2" (WHEN USING MPV METERING VALVES)
	SB-4X-AL	THD QUICK COUPLING, ALUMINUM, 2", FULL PORT (WHEN USING #100 METERING VALVES)		1MV-70	THRD CPLG, STD NPS, ALUMINUM, 2", (WHEN USING #100 METERING VALVES)
15	888-4203-50202PB	SWIVEL 90°, 1/4"MNPT x 1/4"F			
16	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST			
17	888-3011-102PB	TEE, GALV, 1/4"			
18	888-3031-31202PB	NIPPLE, HEX 1/4"MNPT x 1/4" MNPT			
19	888-3016-102PB	CROSS, 1/4"			
20	888-2013-402PB	DUST ELIMINATOR, 1/4" MNPT			
21	888-2229-600PB	VALVE, CONTROL, ELECTRIC, 12VDC (NORMALLY OPEN) (INCLUDES COIL)			
	888-2229-10099PB	VALVE, CONTROL, REPAIR KIT, ELECTRIC, HEAVY DUTY			
22	888-2229-10003PB	VALVE, CONTROL, COIL, 12VDC			
	888-7112-200PB	JUNCTION BOX ASSEMBLY 12VDC BULK BLASTER (2) OUTLET			
	888-7112-300PB	JUNCTION BOX ASSEMBLY 12VDC BULK BLASTER (3) OUTLET			
	888-7112-400PB	JUNCTION BOX ASSEMBLY 12VDC BULK BLASTER (4) OUTLET			
23	888-4201-50202PB	STRAIGHT SWIVEL, 1/4"MNPT x 1/4"F			
24	888-4200-30202PB	HOSE, PUSH-ON INSERT 1/4" x 1/4" NPT			
25	888-4101-002PB	HOSE, PUSH-ON, 1/4"			
26	888-2492-302PB	VALVE, 1/4", BALL CHECK			
27	888-2010-010PB	PRESS GAUGE, 0-160 PSI BACK MNT			
28	888-2408-907PB	BALL VALVE, UNION END, 1-1/4"	28	VB125	BALL VALVE, FULL PORT, 1-1/4" NPT
29	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED	29	888-3028-10711PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 3"
30	888-3028-10716PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x 6"			
31	888-3028-10799PB	NIPPLE, TBE, SCHEDULE 80, 1-1/4" x CLOSED			
32	BRKT-ART-TRLR	EMERGENCY TANK MOUNTING BRACKET, TRAILER			
33	BRKT-ART-SKID	EMERGENCY TANK MOUNTING BRACKET, SKID			
34**	888-2263-40101PB	HANDLE, CONTROL, ELECTRIC #2 W/PLUG			
35	888-7073-110PB	EXTN CORD W/CONNECTOR, 110', 3 PRONG, 2 WIRE			
	888-7073-055PB	EXTN CORD W/CONNECTOR, 55', 3 PRONG, 2 WIRE			
36	888-7072-012PB	POWER CORD, 25' 12VDC, 3-LUG			
37	888-7109-300PB	ELECTRIC CONNECTOR, FEMALE, TWIST-LOCK, 3 PRONG			
38	888-7109-301PB	ELECTRIC CONNECTOR, MALE, TWIST-LOCK, 3 PRONG			
39	PB-03352	PULL CORD DRAIN VALVE			
40	11-221	EMERGENCY AIR TANK			
41	105-3816-1	BOLT, 3/8" x 1"			
	36106	NUT, 3/8"			
	33008	FLAT WASHER, 3/8"			
	1133622	LOCK WASHER, 3/8"			
42	10-203	CONTROL CORD, 16.2, 2 WIRE (PER FT)			
43	VC-150	CHECK VALVE, SWING 1-1/2"			



* See "***Valve Parts Lists***" Section for detailed parts list.

** See "***Control Handle Parts Lists***" Section for detailed parts list.

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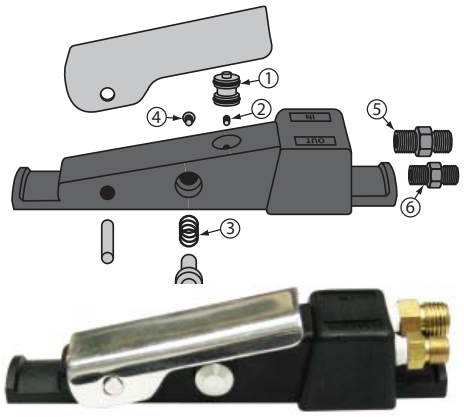
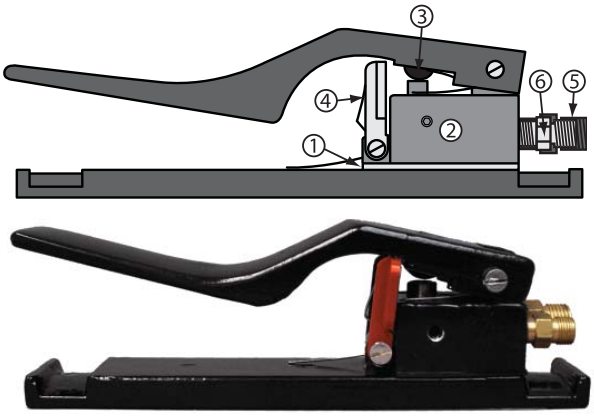
CONTROL HANDLE PARTS LISTS

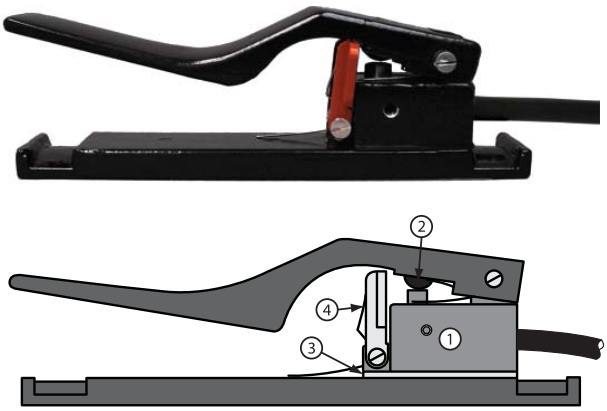


PNEUMATIC REMOTE CONTROL HANDLE (NOT FOR USE WITH STEEL ABRASIVES)		
	888-2263-000PB	HANDLE, CONTROL, PNEUMATIC
	888-2263-00099PB	HANDLE, CONTROL, PNEUMATIC, REPAIR KIT, INCLUDES # 1, 2, 3 & 4
5	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST
6	888-3031-30000PB	HEX NIPPLE 1/8" NPT x 1/8" W/BALL ST



PNEUMATIC REMOTE CONTROL HANDLE #2		
	888-2263-001PB	HANDLE, CONTROL, PNEUMATIC #2
	888-2263-00199PB	HANDLE, CONTROL, PNEUMATIC #2, REPAIR KIT, INCLUDES #1, 2 & 3
4	888-2263-00108PB	HANDLE, CONTROL, PNEUMATIC #2, SAFETY FLAP
5	888-3031-30202PB	HEX NIPPLE 1/4" NPT x 1/4" W/BALL ST
6	888-3031-30000PB	HEX NIPPLE 1/8" NPT x 1/8" W/BALL ST

ELECTRIC REMOTE CONTROL HANDLE (NOT FOR USE WITH STEEL ABRASIVES)		
	888-2263-400PB	HANDLE, CONTROL, ELECTRIC
	888-2263-40001PB	HANDLE, CONTROL, ELECTRIC W/PLUG



ELECTRIC REMOTE CONTROL HANDLE #2		
	888-2263-401PB	HANDLE, CONTROL, ELECTRIC #2
	888-2263-40101PB	HANDLE, CONTROL, ELECTRIC #2 W/PLUG
	888-2263-40102PB	HANDLE, CONTROL, ELECTRIC #2 W/SEALED CONNECTOR **(REQUIRED WHEN USING STEEL ABRASIVES)**
	PB-31131	1/2" 3 PART SEALED CONTROL CORD CONNECTOR **(REQUIRED WHEN USING STEEL ABRASIVES)**
	888-2263-40199PB	HANDLE, CONTROL, ELECTRIC #2, REPAIR KIT, INCLUDES #1, 2 & 3
4	888-2263-00108PB	HANDLE, CONTROL, #2, SAFETY FLAP

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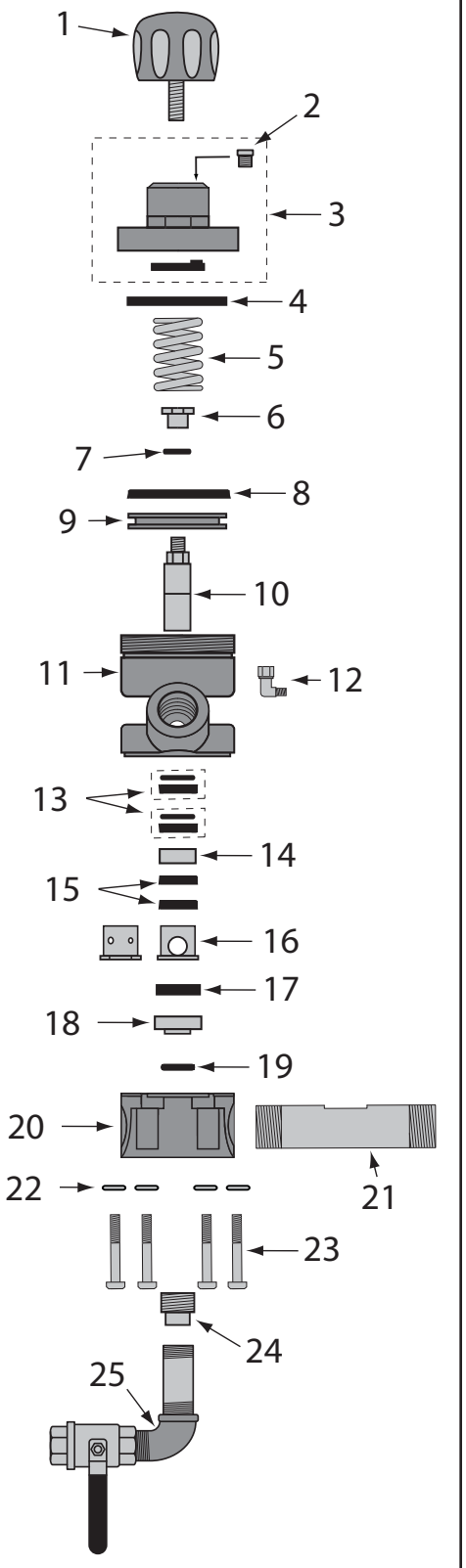
Valve Parts Lists



APVII™ (Automatic Plunger Valve II)		
	888-2148-006PB	APV II, 1" W/SOLID TUNGSTEN CARBIDE SLEEVE
	888-2148-007PB	APV II, 1-1/4" W/SOLID TUNGSTEN CARBIDE SLEEVE
	888-2148-008PB	APV II, 1-1/2" W/SOLID TUNGSTEN CARBIDE SLEEVE
	888-2148-00099PB	APV II, REPAIR KIT W/SOLID TUNGSTEN CARBIDE SLEEVE, INCLUDES (1) # 8 & 10, (2) # 13, (2) # 15, (1) #16, 17, 18 & 19
	888-2148-00098PB	APV II, SEAL KIT, SEALS ONLY, W/URETHANE SEAT, INCLUDES (1) # 8, (2) # 13 & 15, (1) # 17 & 19
1	888-2148-00001PB	APV II, KNOB (BLACK PIRATE BRAND)
2	888-2014-300PB	VENT, 1/8"
3	888-2148-00002PB	APV & APV II, CAP ASSEMBLY
4	888-2149-00019PB	APV & APV II, BUMP RING
5	888-2149-00003PB	APV & APV II, SPRING
6	888-2148-00015PB	APV II, PLUNGER STOP (STAINLESS)
7	888-2148-00016PB	APV II, NYLON WASHER
8	888-2148-00004PB	APV & APV II, PISTON SEAL (GREEN URETHANE)
9	888-2148-00005PB	APV II, PISTON
10	888-2148-00007PB	APV II, PLUNGER (STAINLESS/SOLID TUNGSTEN CARBIDE)
11	888-2148-00009PB	APV II, CYLINDER, W/1" NPT CLEANOUT
12	888-4203-50000PB	SWIVEL 90°, 1/8"MNPT X 1/8"F
13	888-2148-00006PB	APV & APV II, PLUNGER SEAL W/ "O"-RING (CLEAR URETHANE)
14	888-2148-00017PB	APV II, PLUNGER BUSHING (STAINLESS)
15	888-2148-30006PB	APV II, PLUNGER SEAL W/O "O"-RING (CLEAR URETHANE)
16	888-2148-00013PB	APV & APV II, SOLID TUNGSTEN CARBIDE SLEEVE
	888-2149-32020PB	APV & APV II, MULTI PORTED SLEEVE STAINLESS STEEL
17	888-2149-00010PB	APV & APV II, URETHANE SEAT
18	888-2148-00014PB	APV II, INSERT (STAINLESS)
19	888-2149-00018PB	APV & APV II, O-RING
20	888-2148-30011PB	APV II, BASE W/CLEANOUT
21	888-2149-00615PB	APV & APV II, PIPE NIPPLE 1" FEMALE x 1-1/2" MALE
	888-2149-00715PB	APV & APV II, PIPE NIPPLE 1-1/4" MALE x 1-1/4' MALE
	888-2149-00815PB	APV & APV II, PIPE NIPPLE 1-1/2" MALE x 1-1/2" MALE
22	888-7027-50302PB	APV & APV II, FLAT WASHER 3/8" SAE (10 PACK)
23	888-7010-50755PB	APV & APV II, BOLT, 4 PACK
24	888-3014-206PB	APV II, PLUG, PIPE STAINLESS 1"
25	999-8403-00054PB	APV II CLEANOUT BALL VALVE ASSY

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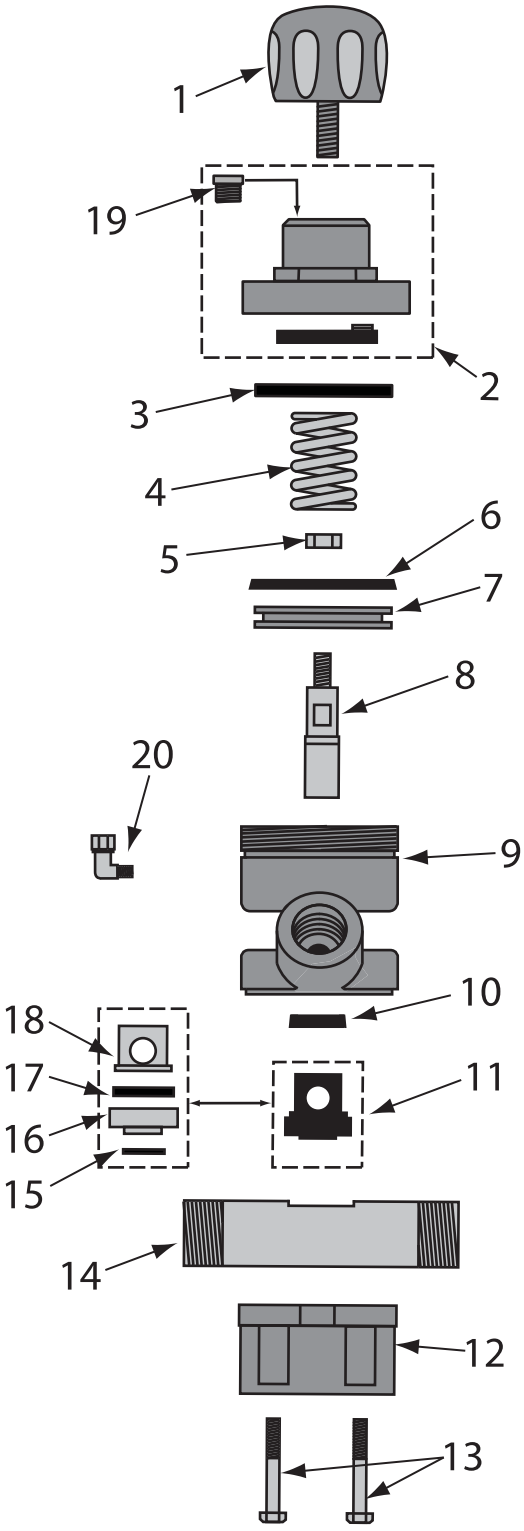
VALVE PARTS LISTS



APV (Automatic Plunger Valve)

	888-2149-006PB	APV, 1", W/TC SLEEVE
	888-2149-106PB	APV, 1", W/URETHANE SLEEVE
	888-2149-007PB	APV, 1-1/4, W/TC SLEEVE
	888-2149-107PB	APV, 1-1/4", W/URETHANE SLEEVE
	888-2149-008PB	APV, 1-1/2", W/TC SLEEVE
	888-2149-108PB	APV, 1-1/2", W/URETHANE SLEEVE
	888-2149-00099PB	APV, REPAIR KIT W/TC SLEEVE, INCLUDES # 6, 8, 10, 15, 16, 17 & 18
	888-2149-00098PB	APV, SEAL KIT, SEALS ONLY W/URETHANE SEAT, INCLUDES # 6, 10, 15 & 17
	888-2149-10099PB	APV, REPAIR KIT W/URETHANE SLEEVE, INCLUDES # 6, 8, 10 & 11
	888-2149-10098PB	APV, SEAL KIT, SEALS ONLY W/URETHANE SLEEVE, INCLUDES 6, 10, & 11
1	888-2149-00001PB	APV, KNOB
2	888-2148-00002PB	APV & APV II, CAP ASSEMBLY
3	888-2149-00019PB	APV & APV II, BUMP RING
4	888-2149-00003PB	APV & APV II, SPRING
5	888-2149-00008PB	APV, NUT
6	888-2149-00004PB	APV, PISTON SEAL
7	888-2149-00005PB	APV, PISTON
8	888-2149-00007PB	APV, TUNGSTEN CARBIDE, PLUNGER
9	888-2149-00009PB	APV, CYLINDER
10	888-2148-00006PB	VALVE, PLUNGER SEAL
11	888-2149-10013PB	APV, SLEEVE, URETHANE
12	888-2149-00011PB	APV, BASE
13	888-7010-50755PB	APV & APV II, BOLT, 4 PACK
14	888-2149-00615PB	APV & APV II, PIPE NIPPLE 1" FEMALE x 1-1/2" MALE
	888-2149-00715PB	APV & APV II, PIPE NIPPLE 1-1/4" MALE x 1-1/4' MALE
	888-2149-00815PB	APV & APV II, PIPE NIPPLE 1-1/2" MALE x 1-1/2" MALE
15	888-2149-00018PB	APV & APV II, O-RING
16	888-2149-00014PB	APV, INSERT
17	888-2149-00010PB	APV & APV II, URETHANE SEAT
18	888-2148-00013PB	APV & APV II, SOLID TUNGSTEN CARBIDE SLEEVE
	888-2149-32020PB	APV & APV II, MULTI PORTED SLEEVE STAINLESS STEEL
19	888-2014-300PB	VENT, 1/8
20	888-4203-50000PB	SWIVEL 90°, 1/8"MNPT X 1/8"F

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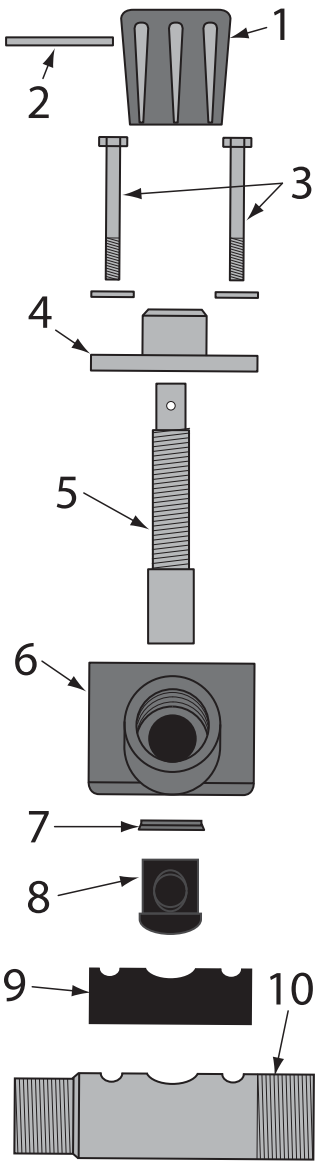
VALVE PARTS LISTS



MPV (Manual Plunger Valve)		
	888-2125-106PB	VALVE, MANUAL PLUNGER, 1", W/URETHANE SLEEVE
	888-2125-107PB	VALVE, MANUAL PLUNGER, 1-1/4", W/URETHANE SLEEVE
	888-2125-108PB	VALVE, MANUAL PLUNGER, 1-1/2", W/URETHANE SLEEVE
	888-2125-10099PB	VALVE, MANUAL PLUNGER, REPAIR KIT W/URETHANE SLEEVE, INCLUDES # 2, 5, 7, 8 & 9
	888-2125-10098PB	VALVE, MANUAL PLUNGER, SEAL KIT, W/URETHANE SLEEVE, INCLUDES 7, 8 & 9
1	888-2125-00001PB	VALVE, MANUAL PLUNGER, KNOB
2	888-2125-00004PB	VALVE, MANUAL PLUNGER, ROLL PIN
3	888-7010-50556PB	VALVE, MANUAL PLUNGER, BOLT W/WASHER
4	888-2125-00002PB	VALVE, MANUAL PLUNGER, CAP
5	888-2125-00005PB	VALVE, MANUAL PLUNGER, PLUNGER
6	888-2125-00006PB	VALVE, MANUAL PLUNGER, BODY
7	888-2148-00006PB	VALVE, PLUNGER SEAL
8	888-2125-10008PB	VALVE, MANUAL PLUNGER, SLEEVE, URETHANE
9	888-2125-00009PB	VALVE, MANUAL PLUNGER, GASKET
10	888-2125-00610PB	VALVE, MANUAL PLUNGER, PIPE NIPPLE 1" FEMALE x 1-1/2" MALE
	888-2125-00710PB	VALVE, MANUAL PLUNGER, PIPE NIPPLE 1-1/4" MALE x 1-1/2" MALE
	888-2125-00810PB	VALVE, MANUAL PLUNGER, PIPE NIPPLE 1-1/2" MALE x 1-1/2" MALE

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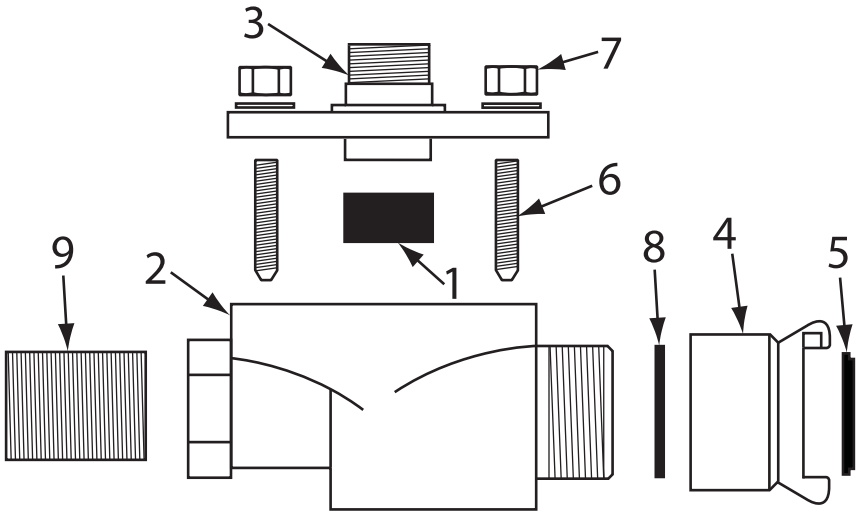
VALVE PARTS LISTS



#100 Metering Valve		
	1MV-C10	VALVE, #100 METERING, COMPLETE, 1-1/2" NPT INLET
1	1MV-40	DONUT WASHER
2	1MV-50	BASE, 1-1/2" INLET
3	1MV-60	TOP
4	1MV-70	THRD CPLG, STD NPS, ALUMINUM, 2", (SB-5/P-32)
4	SB-4X-AL	THRD QUICK COUPLING, ALUMINUM, 2", FULL PORT (FOR USE WITH BIG GUN SYSTEMS, NOT INCLUDED WITH VALVE)
5	SBG-1	GASKET, STANDARD
6	1MV-90	1/2" STUD
7	1MV-100	1/2" NUT
8	1MV-110	WASHER
9	888-3029-10899PB	NIPPLE, TBE, GALV, 1-1/2" x CLOSED (NOT INCLUDED WITH VALVE)

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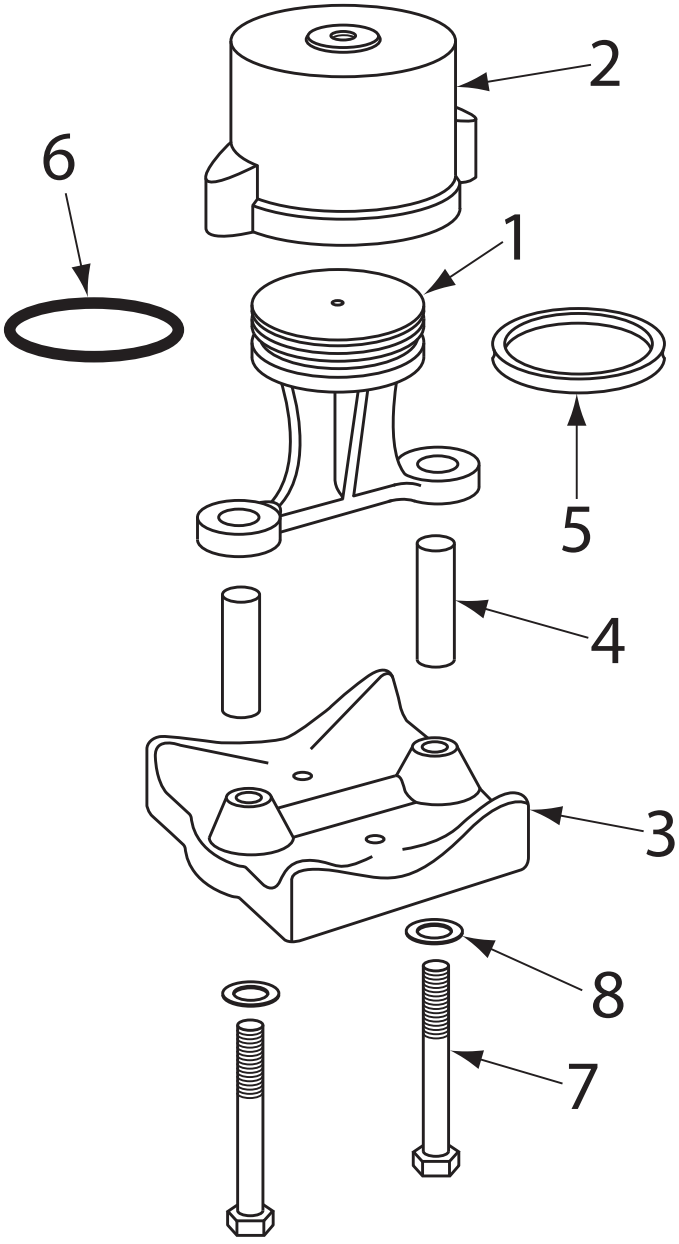
VALVE PARTS LISTS



#400 Pinch Valve		
	1PV-C10	VALVE, #400 PINCH, COMPLETE
1	1P3-30	PISTON
2	1P3-40	CYLINDER
3	1P3-50	BASE
4	1P3-60	SPACER
5	1P3-70	"U" SCRAPER
6	1P3-80	O-RING
7	1P3-90	BOLT
8	1P4-00	WASHER

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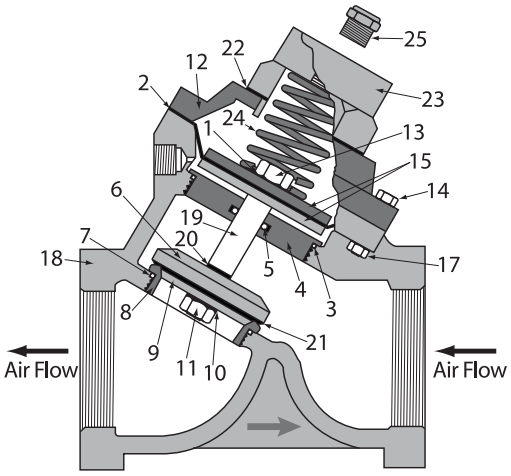
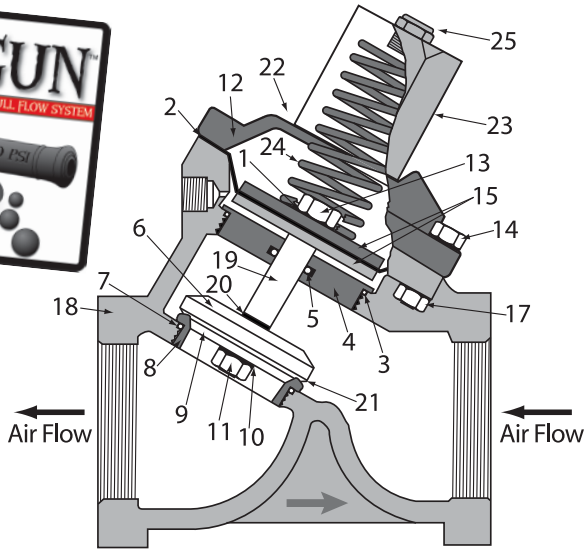
VALVE PARTS LISTS



1-1/2" Auto Air Valve		
	888-2123-108PB	VALVE, AUTO AIR, 1-1/2", (NORMALLY CLOSED)
	888-2123-00799PB	VALVE, AUTO AIR, 1-1/4 & 1-1/2, REPAIR KIT INCLUDES # 1, 2, 3, 5, 7, 11, 13, 20 & 21
25	888-2014-300PB	VENT, 1/8"



1-1/2" Auto Air Valve (BIG GUN™)		
	888-2123-108PB-L	VALVE, AUTO AIR, 1-1/2" FULL FLOW, (NORMALLY CLOSED)
	888-2123-00999PB	VALVE, AUTO AIR, 1-1/2"L & 2" FULL FLOW, REPAIR KIT INCLUDES # 1, 2, 3, 5, 7, 11, 13, 20 & 21
25	888-2014-300PB	VENT, 1/8"

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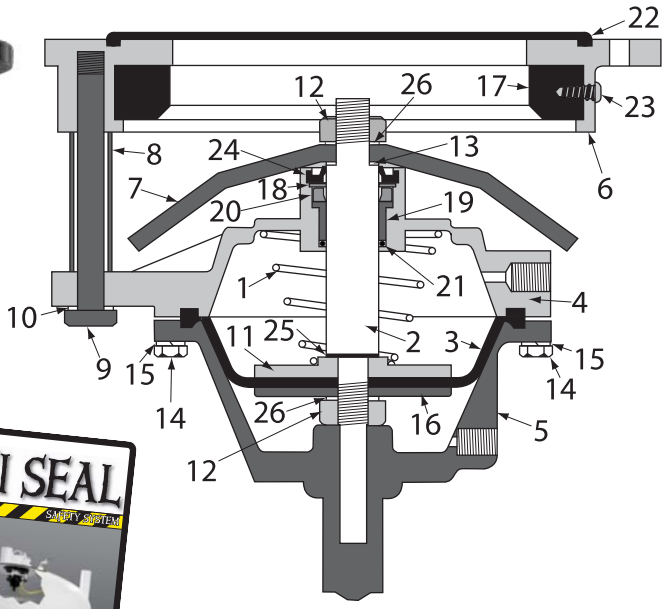
VALVE PARTS LISTS



Double Seal Posi Seal Valve

	888-2100-022PB	VALVE, POSI SEAL, DOUBLE SEAL, COMPLETE
	888-2100-02299PB	VALVE, POSI SEAL, DOUBLE SEAL, REPAIR KIT INCLUDES # 3, 17, 20, 21, 22, 24 & 25
1	888-2100-02201PB	VALVE, POSI SEAL, DOUBLE SEAL, SPRING
2	888-2100-02202PB	VALVE, POSI SEAL, DOUBLE SEAL, VALVE STEM
3	888-2100-02203PB	VALVE, POSI SEAL, DOUBLE SEAL, DIAPHRAGM
4	888-2100-02204PB	VALVE, POSI SEAL, DOUBLE SEAL, UPPER BODY
5	888-2100-02205PB	VALVE, POSI SEAL, DOUBLE SEAL, LOWER BODY
6	888-2100-02206PB	VALVE, POSI SEAL, DOUBLE SEAL, SEAT RETAINER RING
7	888-2100-02207PB	VALVE, POSI SEAL, DOUBLE SEAL, VALVE PLUG
8	888-2100-02208PB	VALVE, POSI SEAL, DOUBLE SEAL, SPACER
9	888-7010-51165PB	VALVE, POSI SEAL, DOUBLE SEAL, BOLT, 1/2" UNC
10	888-7028-504PB	VALVE, POSI SEAL, DOUBLE SEAL, WASHER, LOCK, 1/2"
11	888-2100-02209PB	VALVE, POSI SEAL, DOUBLE SEAL, DIAPHRAGM PLATE
12	888-7017-515PB	VALVE, POSI SEAL, DOUBLE SEAL, NUT, 5/8"
13	888-7027-50401PB	VALVE, POSI SEAL, DOUBLE SEAL, WASHER, FLAT, 5/8"
14	888-7010-50507PB	VALVE, POSI SEAL, DOULBE SEAL, BOLT 5/16"
15	888-7028-551PB	VALVE, POSI SEAL, DOUBLE SEAL, WASHER, LOCK, 5/16"
16	888-2100-02220PB	VALVE, POSI SEAL, DOUBLE SEAL, DIAPHRAGM BTM PLATE
17	888-2100-02216PB	VALVE, POSI SEAL, DOUBLE SEAL, SEAT, URETHANE
18	888-2100-02210PB	VALVE, POSI SEAL, DOUBLE SEAL, SNAP RING
19	888-2100-02211PB	VALVE, POSI SEAL, DOUBLE SEAL, STEM SLEEVE, BRASS
20	888-2100-02212PB	VALVE, POSI SEAL, DOUBLE SEAL, ROD WIPER SEAL
21	888-2100-02224PB	VALVE, POSI SEAL, DOUBLE SEAL, O-RING, VALVE SEAT
22	888-2100-02213PB	VALVE, POSI SEAL, DOUBLE SEAL, O-RING
23	888-7024-50105PB	VALVE, POSI SEAL, DOUBLE SEAL, SHT METAL SCREW
24	888-2100-02225PB	VALVE, POSI SEAL, DOUBLE SEAL, UPPER WIPER SEAL
25	888-2100-02226PB	VALVE, POSI SEAL, DOUBLE SEAL, O-RING
26	888-2100-02227PB	VALVE, POSI SEAL, DOUBLE SEAL, LOCK WASHER 5/8"

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BLASTING SET-UP

NOVA 2000™

RADEX™ 6 OUTLET BREATHING FILTER SHOWN W/CO MONITOR

BREATHING EQUIPMENT

407906	RADEX BREATHING AIRLINE FILTER COMPLETE (6 OUTLET)
407000	NOVA 2000™ RESPIRATOR
407029	50' BREATHING AIR SUPPLY HOSE, 3/8"
407001	COOL TUBE
407024	HOT TUBE
407200	RADEX™ CO MONITOR (120V)
407201	RADEX™ CO MONITOR (12V)

AIR DRYERS

888-1310-071PB	AIR DRYER ADBP-750/950, 800 CFM @ 100 PSIG OR 1149 CFM @ 150 PSIG
888-1310-121PB	AIR DRYER ADPB-1200 CFM @ 100 PSIG OR 1723 CFM @ 150 PSIG
888-1310-161PB	AIR DRYER ADPB-1600 CFM @ 100 PSIG OR 2297 CFM @ 150 PSIG

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BLASTING SET-UP

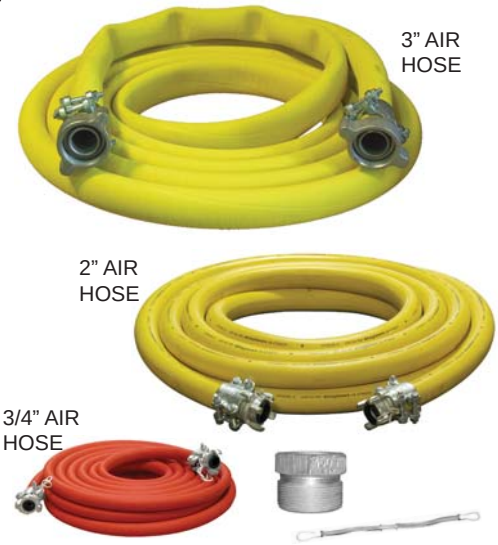
1-1/4" ENTRY NOZZLES

1348-555	#5 TUNGSTEN CARBIDE NOZZLE
1348-556	#6 TUNGSTEN CARBIDE NOZZLE
1348-557	#7 TUNGSTEN CARBIDE NOZZLE
1348-558	#8 TUNGSTEN CARBIDE NOZZLE
1348-5610	#10 TUNGSTEN CARBIDE NOZZLE
1348-5612	#12 TUNGSTEN CARBIDE NOZZLE

BLAST HOSE

Nozzles Not Included

10-114BLK-050-3AL	1-1/4" BLAST HOSE ASSEMBLY, 50', INCLUDES NOZZLE HOLDER
10-114BLK-050-3XAL	1-1/4" BIG GUN BLAST HOSE ASSEMBLY, 50', INCLUDES NOZZLE HOLDER
10-114BLK-050-4AL	1-1/4" EXTENSION HOSE ASSEMBLY, 50'
10-114BLK-050-4XAL	1-1/4" BIG GUN EXTENSION HOSE ASSEMBLY, 50'
10-112BLK-50-4AL	1-1/2" EXTENSION HOSE ASSEMBLY, 50'
10-112BLK-50-4XAL	1-1/2" BIG GUN EXTENSION HOSE ASSEMBLY, 50'
10-200BLK-050-4XAL	2" BIG GUN EXTENSION HOSE ASSEMBLY, 50'
10-114TAN-010-5AL	1-1/4" WHIP HOSE ASSEMBLY, 10', INCLUDES NOZZLE HOLDER
10-114TAN-010-5XAL	1-1/4" BIG GUN WHIP HOSE ASSEMBLY, 10', INCLUDES NOZZLE HOLDER
27WT-15	SAFETY CABLE, ALL BLAST **HOSE TO EQUIP.**
27WC-15	SAFETY CABLE, ALL BLAST **HOSE TO HOSE.**



AIR HOSE

10-034RED-050-1	3/4" AIR HOSE ASSEMBLY, 50'
10-200YEL-050-1	2" AIR HOSE ASSEMBLY, 50'
10-300YEL-050-2	3" AIR HOSE ASSEMBLY, 50'
GJDS-300	DOUBLE SPUD, 3"
GJFS-300	FEMALE SPUD, 3" NPT
27WT-1	SAFETY CABLE, 3/4" **HOSE TO EQUIP.**
27WC-1	SAFETY CABLE, 3/4" **HOSE TO HOSE.**
27WT-2	SAFETY CABLE, 2" & 3" **HOSE TO EQUIP.**
27WC-2	SAFETY CABLE, 2" & 3" **HOSE TO HOSE.**

BLAST SUITS / GLOVES

122-9140	BLAST SUIT, LIGHTWEIGHT, MEDIUM
122-9150	BLAST SUIT, LIGHTWEIGHT, LARGE
122-9160	BLAST SUIT, LIGHTWEIGHT, XL
122-9170	BLAST SUIT, LIGHTWEIGHT, XXL
122-9180	BLAST SUIT, LIGHTWEIGHT, XXXL
407701	LUXURY DOUBLE PALMED LEATHER BLASTING/WELDING GLOVES

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Mounting Options

Highway Trailer

888-7139-343PB

TRAILER, TORSION HWY 14K# GVWR ELECTRIC BRAKE, W/SPARE FITS 6 & 8 TON VESSELS, PIRATE BRAND

Dual Tandem Highway Trailer

888-7139-481PB

TRAILER, LOAD LEVELER LEAF SPRING HWY 20K# GVWR, ELECTRIC BRAKE W/ SPARE FITS 6 & 8 TON VESSELS, PIRATE BRAND

Yard Trailer

888-7139-240PB

TRAILER, TORSION, YARD 14K#, FITS 6 & 8 TON VESSELS, **OFF ROAD USE ONLY,** PIRATE BRAND

Leg Extensions

888-1011-121PB

20" LEG EXTENSIONS, PIRATE BRAND

(NOT FOR USE WITH SPH PINCH BLASTERS)

Skid Mount

888-7002-121PB

SKID, BULK UNIT MOUNT W/FORK POCKETS

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Available Accessories

120AC Power Supply

Allows 12VDC electric blasters to be used with standard 120AC outlets.

Part Number:
PB-SMP3WP (Powers up to 4 control valves)
PB-SMP7WP (Powers up to 8 control valves)

Bulk Bag Rack

Allows for quick and easy loading of bulk packaged media. 56" x 56".

Part Number:
888-1108-072PB

Convenience Packages

For BARE BONES systems. Convenience packages add some very helpful accessories to your system.

1. Pressure Gauge: This helpful device mounted on your moisture separator makes diagnosing performance issues easy.

2. Union End Ball Valves: Using these to connect your metering valves to your bulk pot provides easy removal of the valve without dumping abrasive. (one per outlet)

3. 4" Clean Out Flange: Located under the pressure vessel, the flange allows you to empty the blaster much easier than with a traditional threaded plug.

4. Muffler: Adding a muffler to your blow-down dramatically decreases the noise when pressure is released.

Part Numbers:
PB-CP02 (for 2 outlet systems)
PB-CP03 (for 3 outlet systems)
PB-CP04 (for 4 outlet systems)

Ladder Extensions

Mounted under the existing ladders, ladder extensions make it easier to get up the side ladders and access the top of the pressure vessel. Not for use with trailer mounted blasters.

Part Number:
888-1014-121PB (PAIR)

Electric Conversion Kits

Convert your pneumatically controlled bulk blaster to electric. Electric remote controls are recommended if you run over 100' of blast hose or when blasting in cold weather.

Part Number:
888-0004-420PB (2 Outlets)
888-0004-430PB (3 Outlets)
888-0004-440PB (4 Outlets)

ASME Relief Valve Kit

Adding a Relief Valve to your blaster can prevent dangerous over-pressurization. Local codes may require a different valve

Part Number:
888-2470-00701PB

Abrasive Cut-off Kits

Add an abrasive cut-off conversion kit to your blaster allowing you to blow off your project with the same high velocity air you blast with.

Part Numbers:

Pneumatic Cutoff Kit 110' (Customer Installed) (1 req. per outlet):	888-2035-03101PB
Push-Button Cut-off Kit , Ele. & Pneu.(Cust. Installed)(1 req. per outlet):	888-2035-00201PB
Electric Cut-off Kit 110' (Cust. Installed)(2 Outlets):	888-2035-13201PB
Electric Cut-off Kit 110' (Cust. Installed)(3 Outlets):	888-2035-13301PB
Electric Cut-off Kit 110' (Cust. Installed)(4 Outlets):	888-2035-13401PB

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BLASTING CHARTS

Nozzle Air, Power & Abrasive Requirements

NOZZLE # ORIFICE SIZE	NOZZLE AIR, POWER & ABRASIVE REQUIREMENTS		NOZZLE PRESSURE							
			50 PSI (3.45 BAR)	60 PSI (4.14 BAR)	70 PSI (4.83 BAR)	80 PSI (5.52 BAR)	90 PSI (6.21 BAR)	100 PSI (6.89 BAR)	125 PSI (8.62 BAR)	140 PSI (9.65 BAR)
#2 1/8 inch (3.2 mm)	AIR	(cu ft/min)	12	13	15	18	19	21	26	
		(cu m/min)	0.34	.037	0.42	0.51	0.54	0.59	0.74	
	HORSEPOWER	(hp)	1.75	2	2.5	3	3.5	4	6	
		(kW)	1.30	1.49	1.86	2.24	2.61	2.98	4.47	
	ABRASIVE	(lb/hr)	70	80	90	100	110	120	135	
		(kg/hr)	32	36	41	45	50	54	61	
#3 3/16 inch (4.8 mm)	AIR	(cu ft/min)	25	30	35	40	43	45	60	
		(cu m/min)	0.71	0.85	0.99	1.13	1.22	1.27	1.70	
	HORSEPOWER	(hp)	5	8	9	9.5	10	10.5	16	
		(kW)	3.75	5.97	6.71	7.08	7.46	7.86	11.93	
	ABRASIVE	(lb/hr)	150	170	200	215	240	260	320	
		(kg/hr)	68	77	91	98	109	118	145	
#4 1/4 inch (6.35 mm)	AIR	(cu ft/min)	50	55	60	70	75	80	95	
		(cu m/min)	1.42	1.56	1.70	1.98	2.12	2.27	2.69	
	HORSEPOWER	(hp)	10	12	13	16	17	18	25	
		(kW)	7.46	8.95	9.69	11.93	12.68	13.42	18.64	
	ABRASIVE	(lb/hr)	270	300	350	400	450	500	675	
		(kg/hr)	122	136	159	181	204	227	306	
#5 5/16 inch (8 mm)	AIR	(cu ft/min)	80	90	100	115	125	140	190	230
		(cu m/min)	2.27	2.55	2.83	3.26	3.54	3.96	5.38	6.51
	HORSEPOWER	(hp)	17	20	25	27	28	30	36	60
		(kW)	12.68	14.91	18.64	20.13	20.88	22.37	26.85	44.85
	ABRASIVE	(lb/hr)	470	530	600	675	750	825	1000	1125
		(kg/hr)	213	240	272	306	340	374	454	510
#6 3/8 inch (9.5 mm)	AIR	(cu ft/min)	110	125	145	160	175	200	275	315
		(cu m/min)	3.12	3.54	4.11	4.53	4.96	5.66	7.79	8.91
	HORSEPOWER	(hp)	25	29	32	35	40	45	57	65
		(kW)	18.64	21.63	23.86	26.10	29.83	33.56	42.50	48.59
	ABRASIVE	(lb/hr)	675	775	875	975	1060	1100	1350	1840
		(kg/hr)	306	352	397	442	481	499	612	835
#7 7/16 inch (9.5 mm)	AIR	(cu ft/min)	150	170	200	215	240	255	315	405
		(cu m/min)	4.25	4.81	5.66	6.09	6.80	7.22	8.92	11.46
	HORSEPOWER	(hp)	35	40	45	50	55	60	70	90
		(kW)	26.10	29.83	33.56	37.28	41.01	44.74	52.20	67.28
	ABRASIVE	(lb/hr)	900	1000	1200	1300	1400	1510	1800	2540
		(kg/hr)	408	454	544	590	635	703	816	1152
#8 1/2 inch (12.7 mm)	AIR	(cu ft/min)	200	225	250	275	300	340	430	540
		(cu m/min)	5.66	6.37	7.08	7.79	8.50	9.63	12.18	15.28
	HORSEPOWER	(hp)	45	50	55	63	70	75	95	120
		(kW)	33.56	37.28	41.01	46.98	52.20	55.93	70.84	89.70
	ABRASIVE	(lb/hr)	1200	1350	1500	1700	1850	2025	2525	3240
		(kg/hr)	544	612	680	771	839	919	1145	1470
#10 5/8 inch (16 mm)	AIR	(cu ft/min)	300	350	400	450	500	550	700	880
		(cu m/min)	8.50	9.91	11.33	12.74	14.16	15.58	19.82	24.90
	HORSEPOWER	(hp)	70	80	90	100	110	120	150	190
		(kW)	52.20	59.66	67.11	74.57	82.03	89.48	111.85	142.02
	ABRASIVE	(lb/hr)	1900	2200	2400	2700	3000	3300	4000	5200
		(kg/hr)	862	998	1089	1225	1361	1497	1814	2359
#12 3/4 inch (19 mm)	AIR	(cu ft/min)	430	500	575	650	700	800	1100	1255
		(cu m/min)	12.18	14.16	16.28	18.41	19.82	22.66	31.15	35.52
	HORSEPOWER	(hp)	100	115	130	145	160	175	215	245
		(kW)	74.57	85.76	96.94	108.13	119.31	130.50	160.33	183.13
	ABRASIVE	(lb/hr)	2700	3100	3500	3900	4300	4700	5700	7375
		(kg/hr)	1225	1406	1588	1769	1950	2132	2586	3345

This table is to be used as reference only. Actual results may vary depending on specific abrasive medium used. This table is based on abrasive with a bulk density of 100 pounds per cubic foot.

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